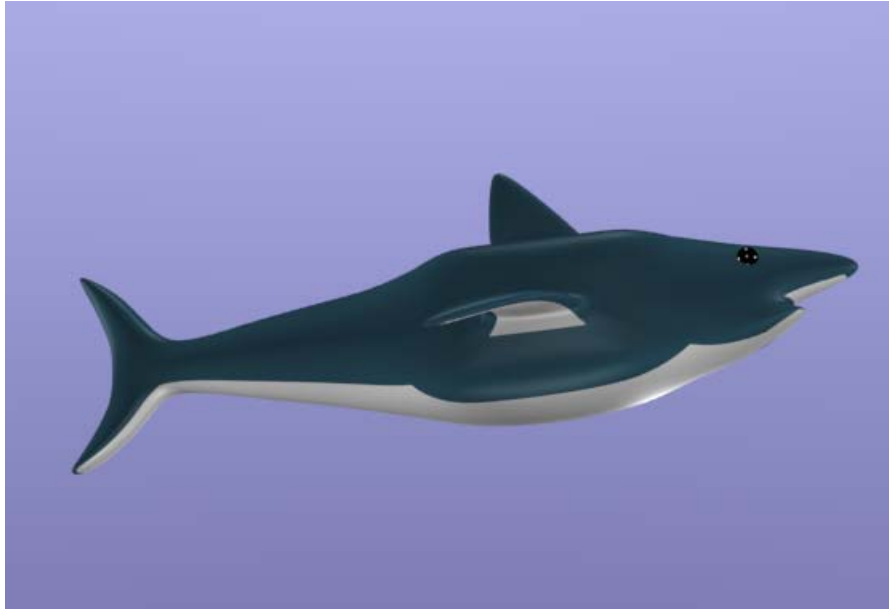


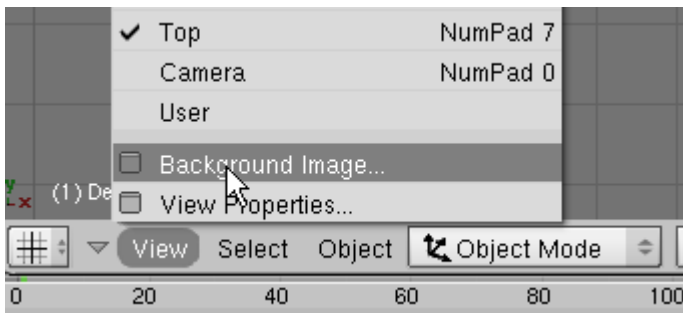
Course: 3D Design  
Title: Mesh Modeling – Shark  
Dropbox File: Shark.zip  
Blender: Version 2.41  
Level: Beginning  
Author: Neal Hirsig ([nhirsig@tufts.edu](mailto:nhirsig@tufts.edu))

## Mesh Modeling – Shark

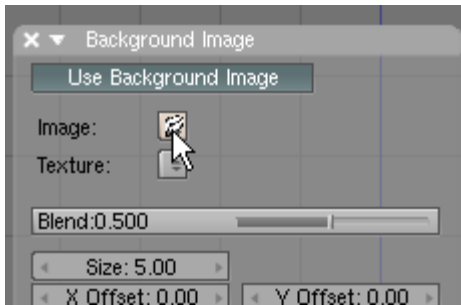


In this tutorial, we'll model a Shark. Open MyBlender.blend (or the default if you are using MyBlender as the default Blender file).

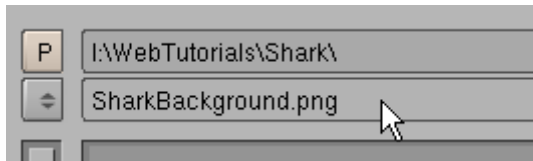
We will use the Default Cube Object for this tutorial. **Switch to Front View.** Use the View Menu in the 3D viewport header and select View / Background Image.



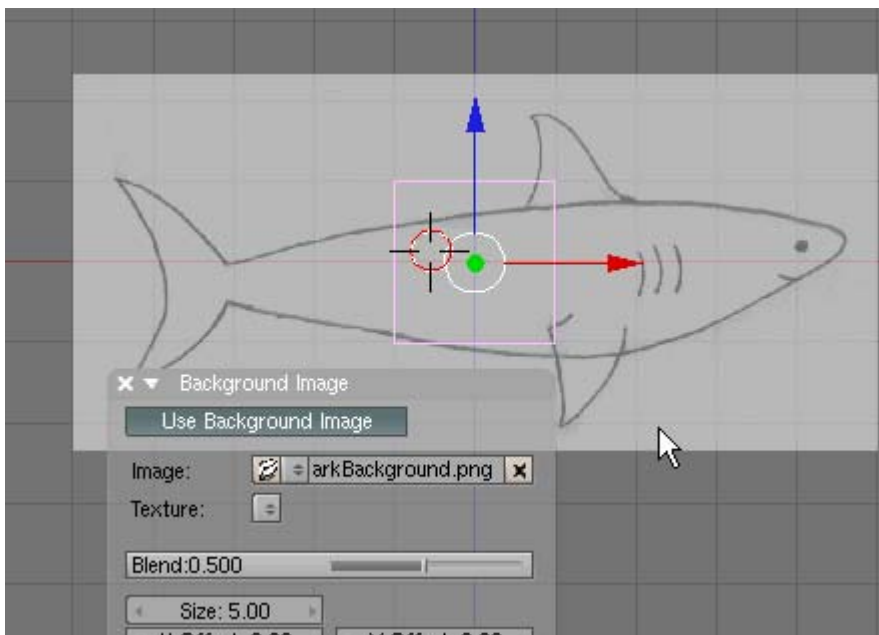
Press the Use Background Image button. Click on the icon to the right of the word Image.



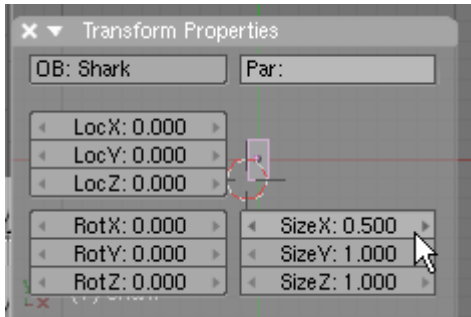
Select the SharkBackground.png image file. This file is located in the Shark.zip file.



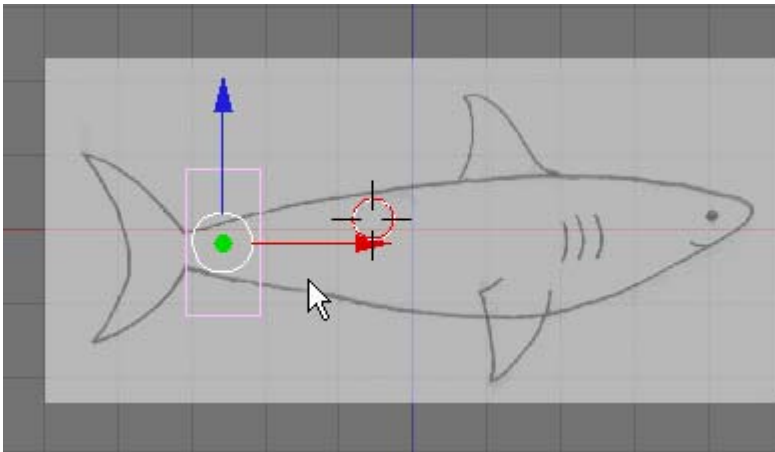
This places the background image in the front view.



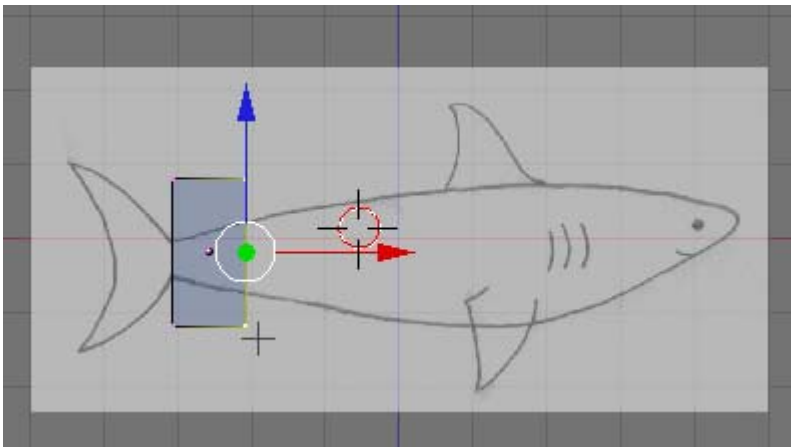
Select the cube if not already selected. In the Transform Properties Panel name this object Shark and set the Size X to .5



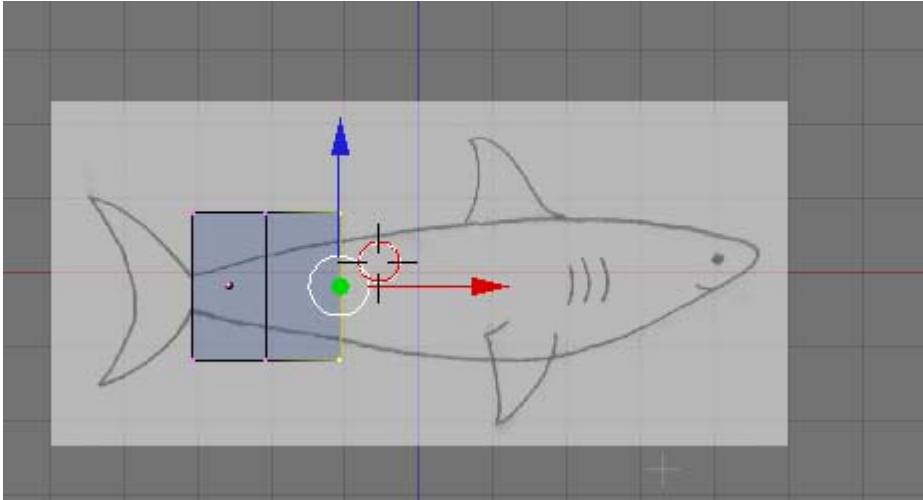
Use the blue and red Transform widget arrows to move the cube object to the edge of the shark tail as shown below.



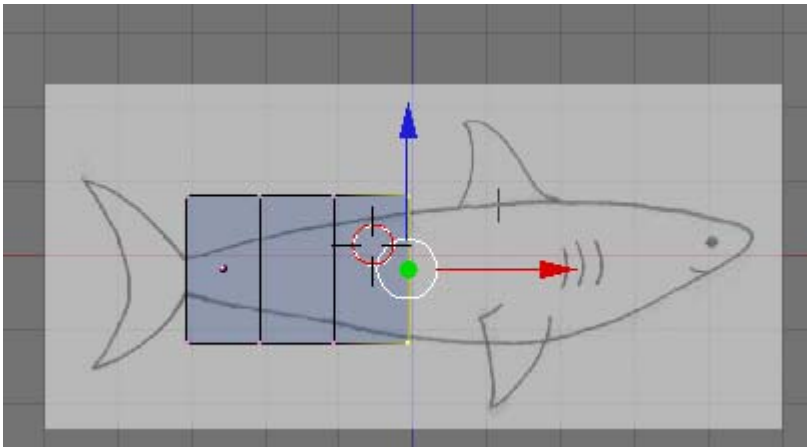
TAB to Edit Mode. Press the AKEY to deselect the vertices. Press the BKEY (box select) and select the row of vertices on the right.



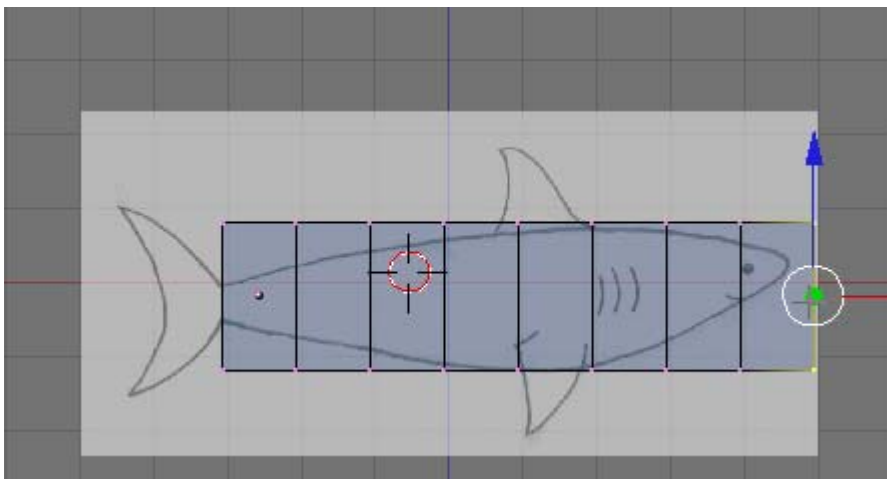
Press the EKEY (Extrude), Select REGION. HOLD the CTRL KEY down and extrude the vertices 1 unit to the right as shown.



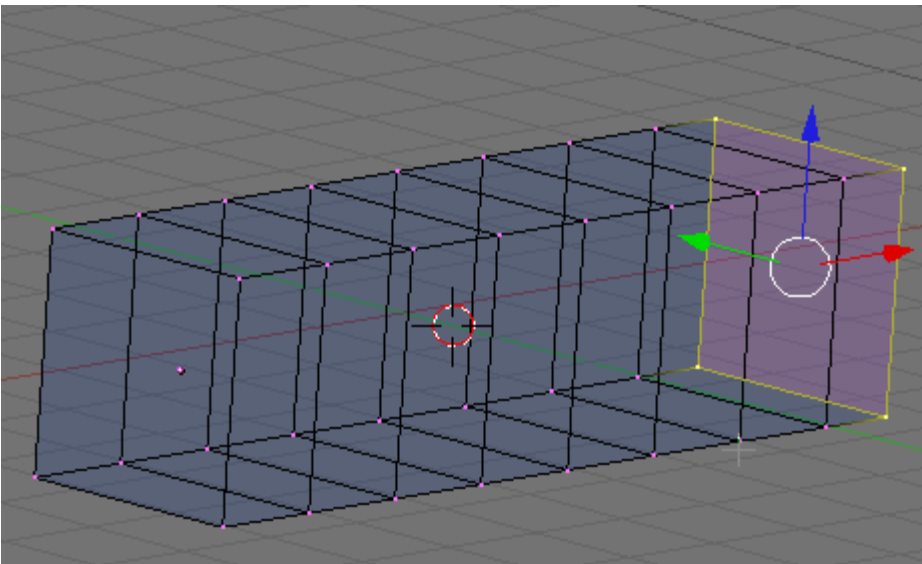
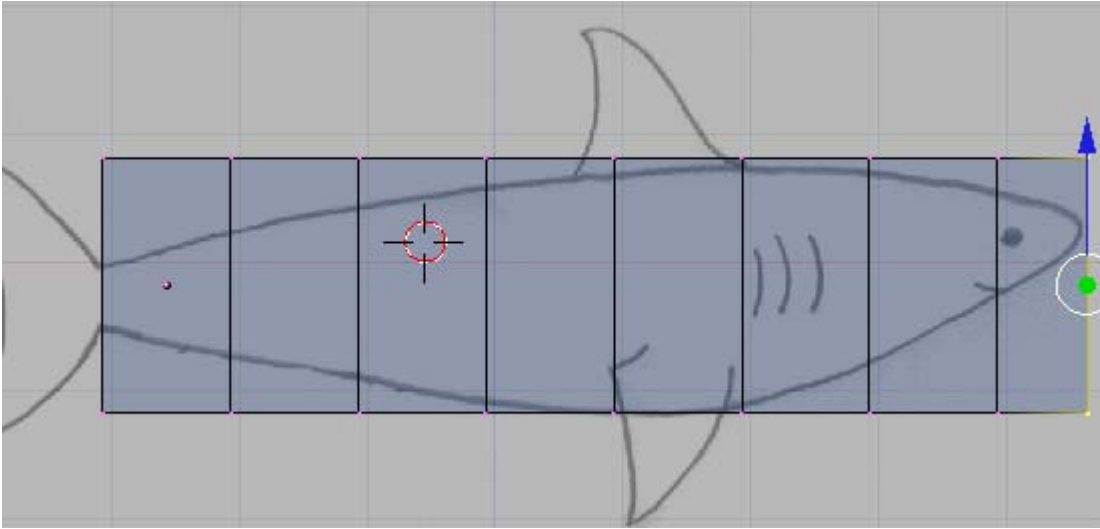
Press the EKEY (Extrude) again. Select REGION. HOLD the CTRL KEY down and extrude the vertices 1 unit to the right as shown.



Repeat this process until you have 8 segments of extrusion as shown below.

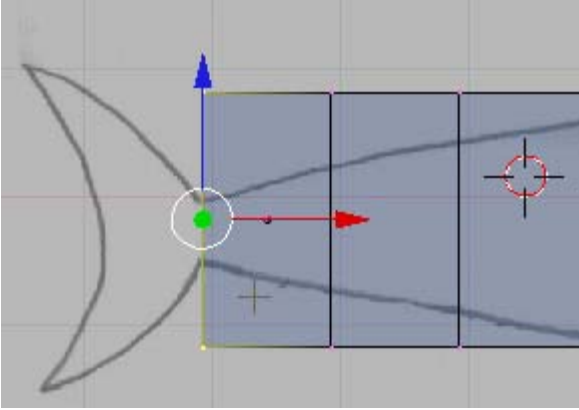


With the final right set of vertices still selected, use the red Transform Widget arrow to move them to the left positioning them at the tip of the shark's nose as shown below.

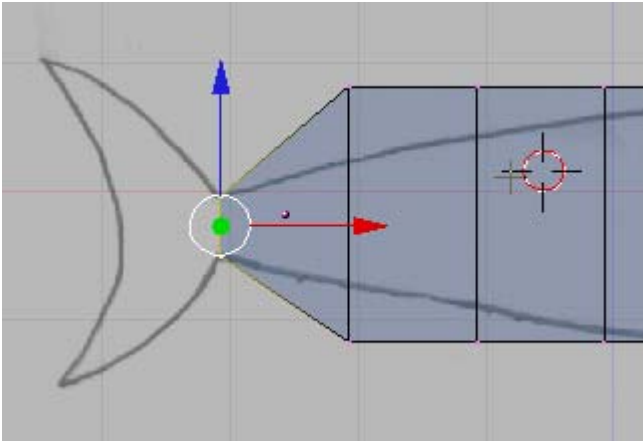


Note: We used the extrusion tool instead of the Subdivide tool to reduce the number of faces in our shark object.

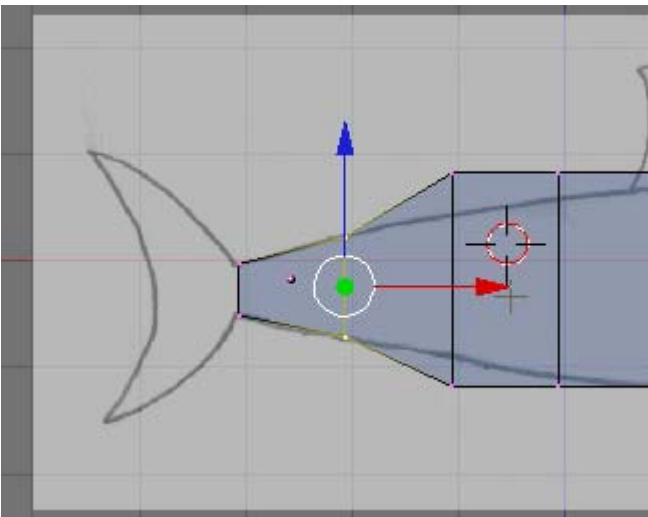
Switch to Front View. Press the AKEY to deselect the vertices. Press the BKEY (box select). And select the far left set of vertices.



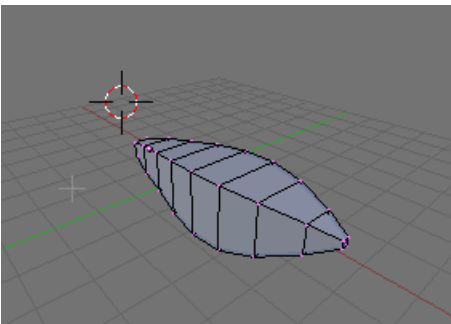
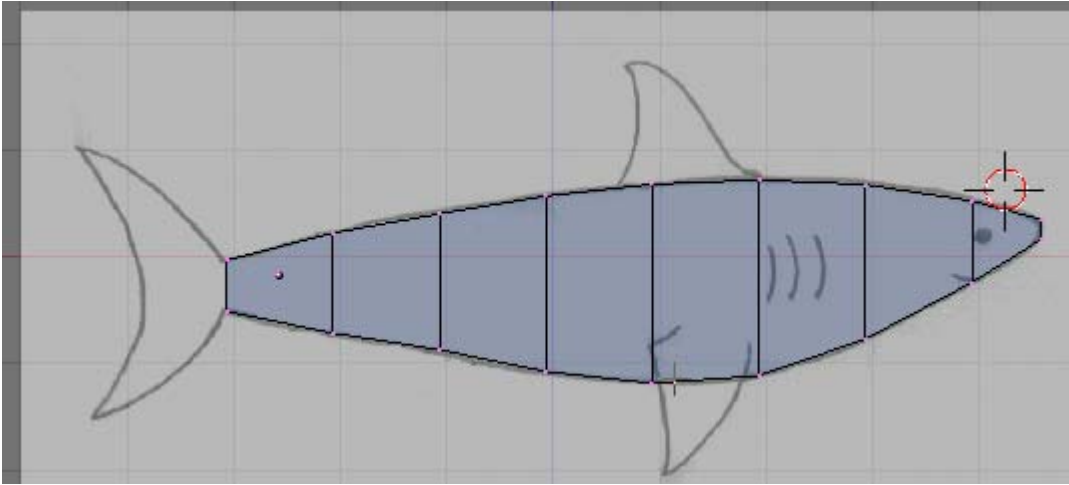
Press the SKEY (Scale) and scale them down to the size of the shark image behind them and use the blue Transform Widget arrow (if needed) to position them.



Press the AKEY to deselect the vertices. Press the BKEY (Box Select) and select the second set of vertices, scale them and position them as shown.

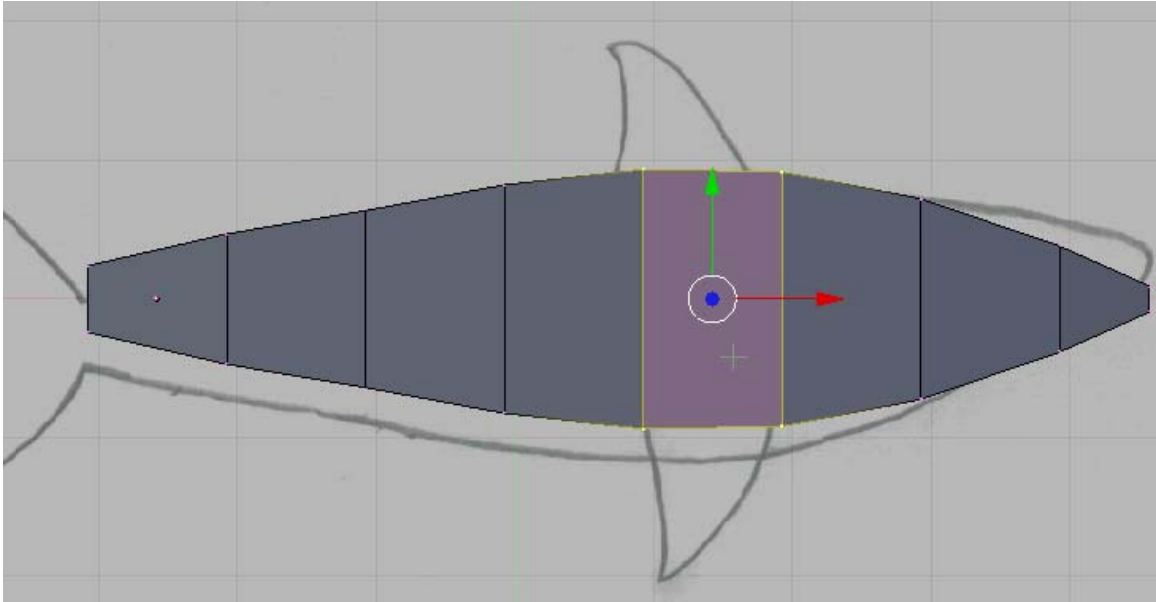


Repeat this process for all of the sets of vertices. (You may want to zoom in to get a better view)

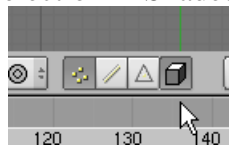


**Save your file F2.**

Switch to top view. **Press the ZKEY to enter shading mode.** We want to create a new face in the center of the shark's back to extrude the top fin. Press the AKEY to deselect the vertices. Box select the 2 groups of vertices on the top of the shark where the fin will be located.

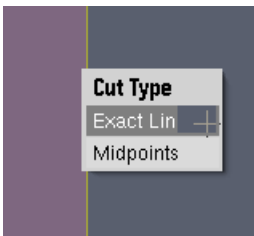


Note: We made this selection in Shaded Mode with the Limited Selection button

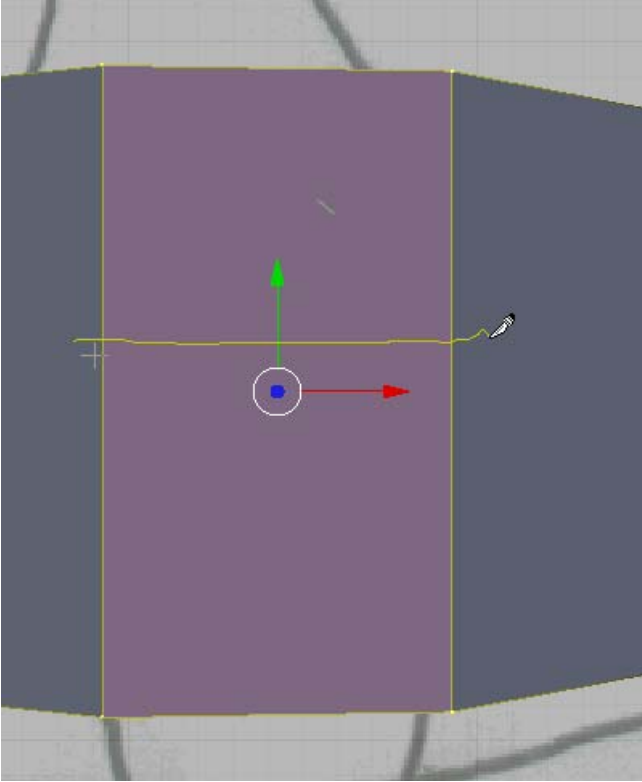


activated (by default) so that we select only the vertices on the top of the shark and not the bottom vertices as well.

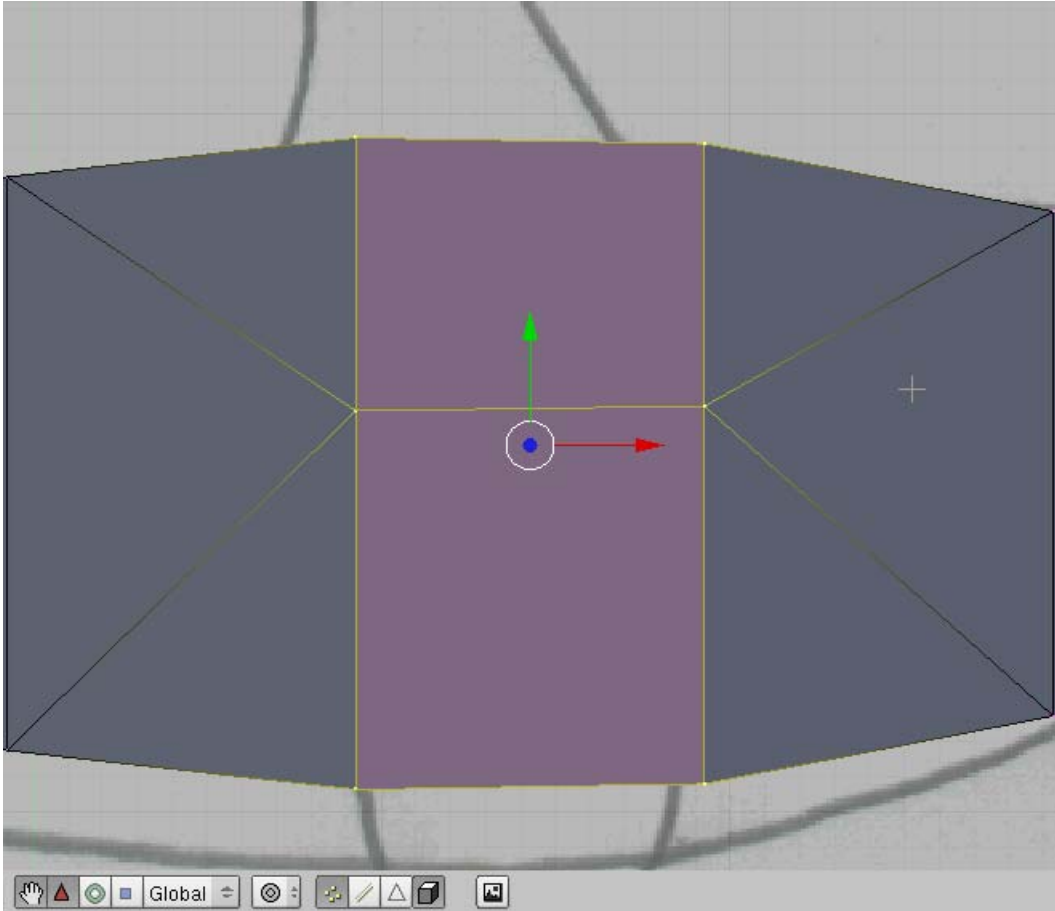
Zoom in a bit on this area. With these top vertices selected press the SHIFT-K (Knife). Select Exact Line.



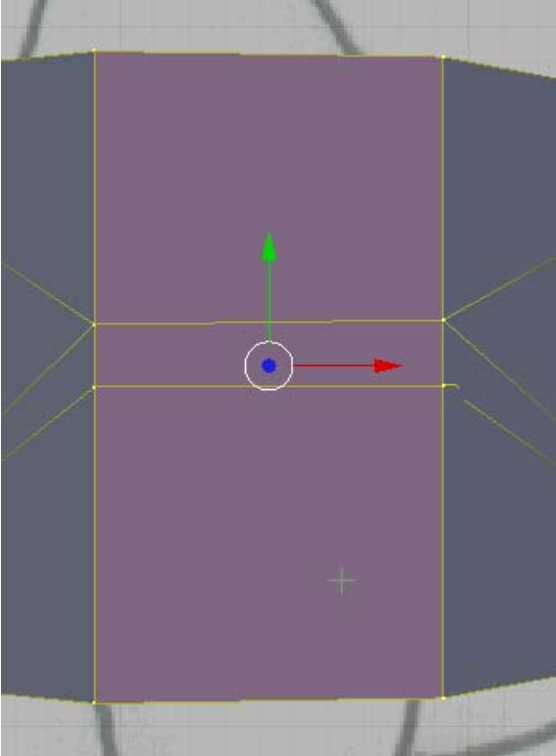
Your cursor will turn into a Knife icon. Draw a straight line across the 2 edges as shown below. (Note this is just off center)



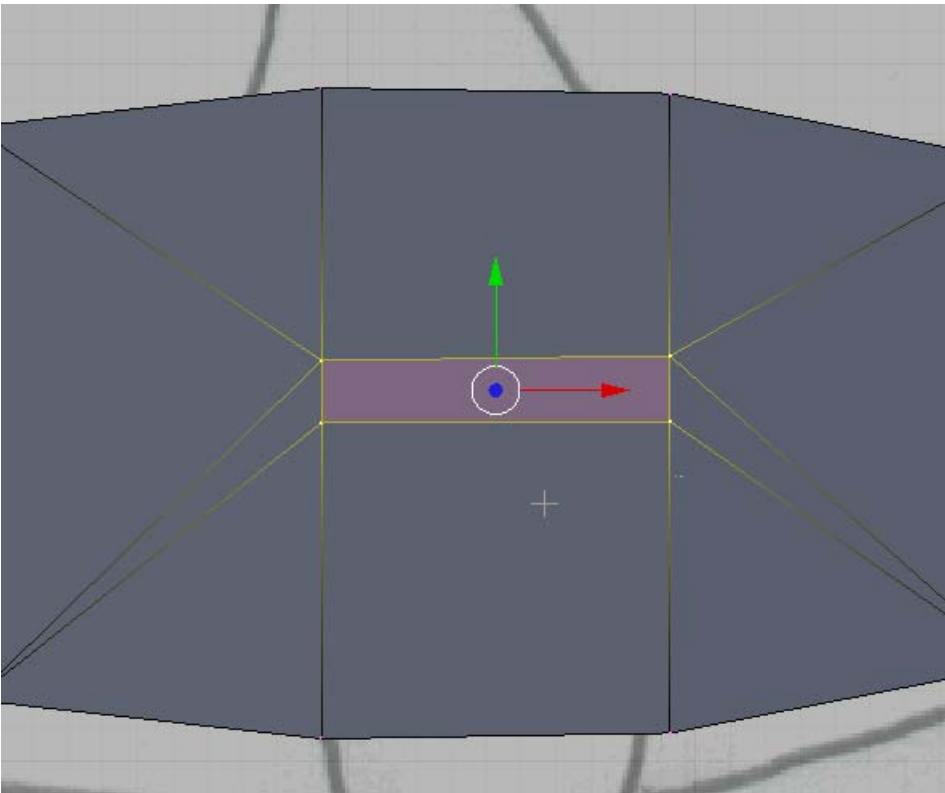
After drawing the line press the ENTER key. This divides the face into 2 faces with the edge defined by the placement of the knife line.



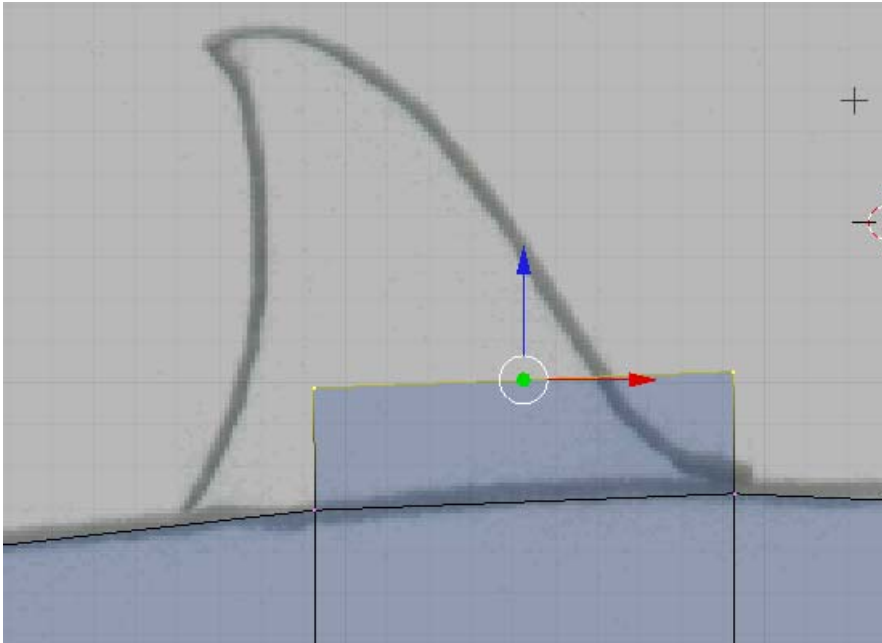
Press SHIFT-K (Knife) again. Select Exact Line and draw a line across the same two edges on the other side of center. Press ENTER to divide the face as shown below.



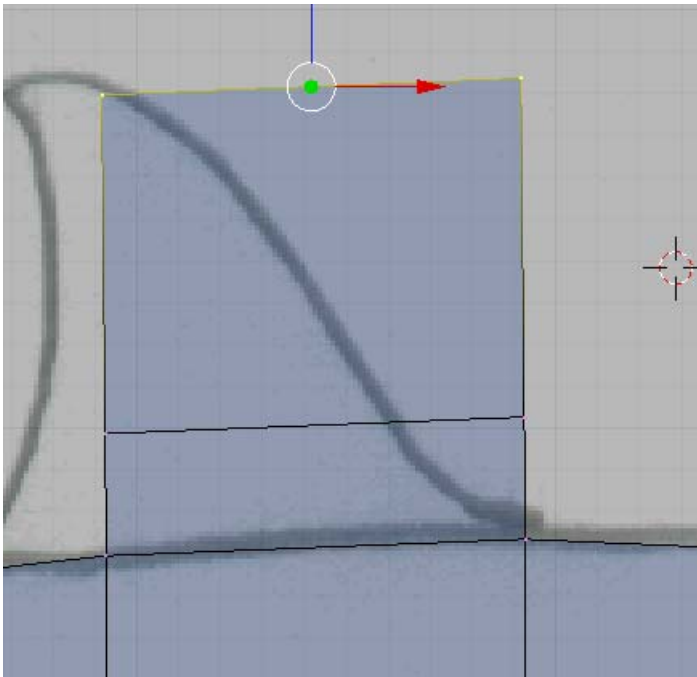
We now have a face to extrude for the top fin. Press the **A**KEY to deselect the vertices. Box select the 4 vertices that make up the new face as shown below.



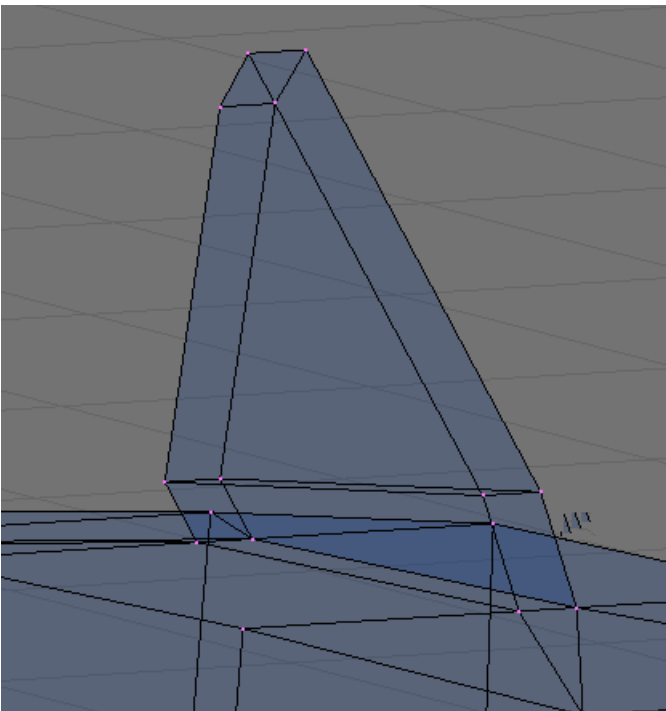
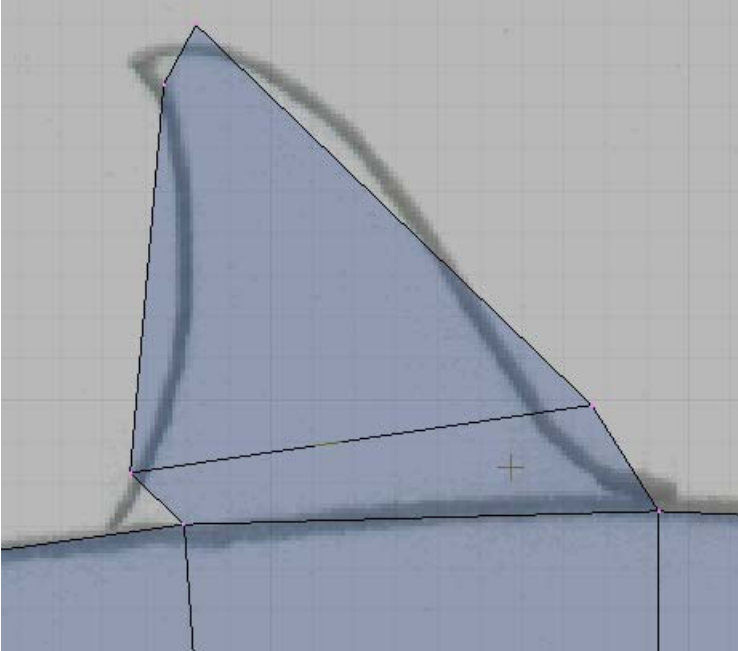
Switch to Front View. Press the EKEY (Extrude) and Region Extrude the face up a little bit as shown below.



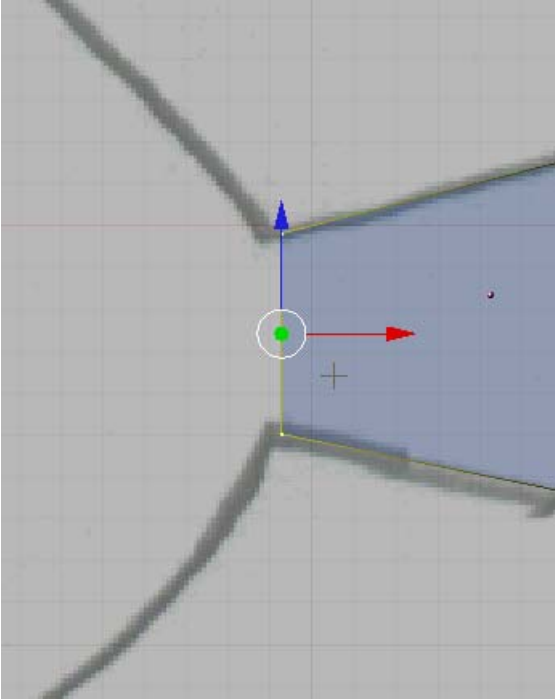
Press the EKEY (Extrude) again and Region Extrude the face up a as shown below.



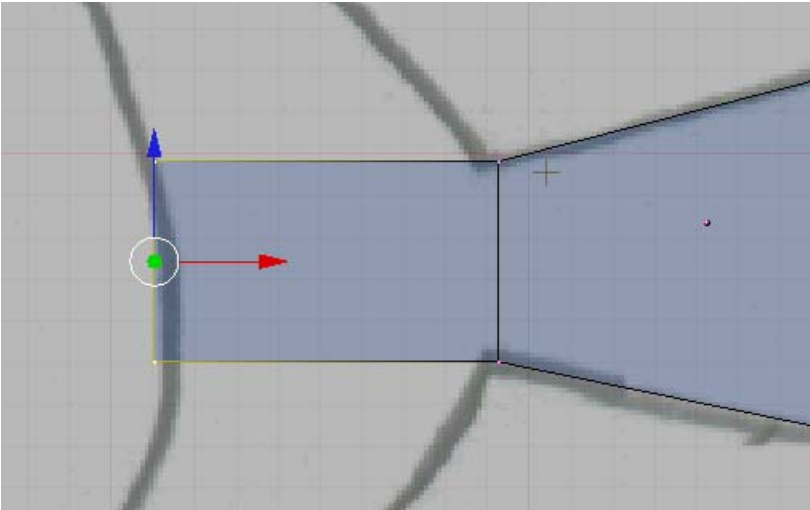
**Press the ZKEY to go back to Wireframe view.** Press the AKEY to deselect the vertices. Box select the vertex groups individually and move them (GKEY) as shown below.



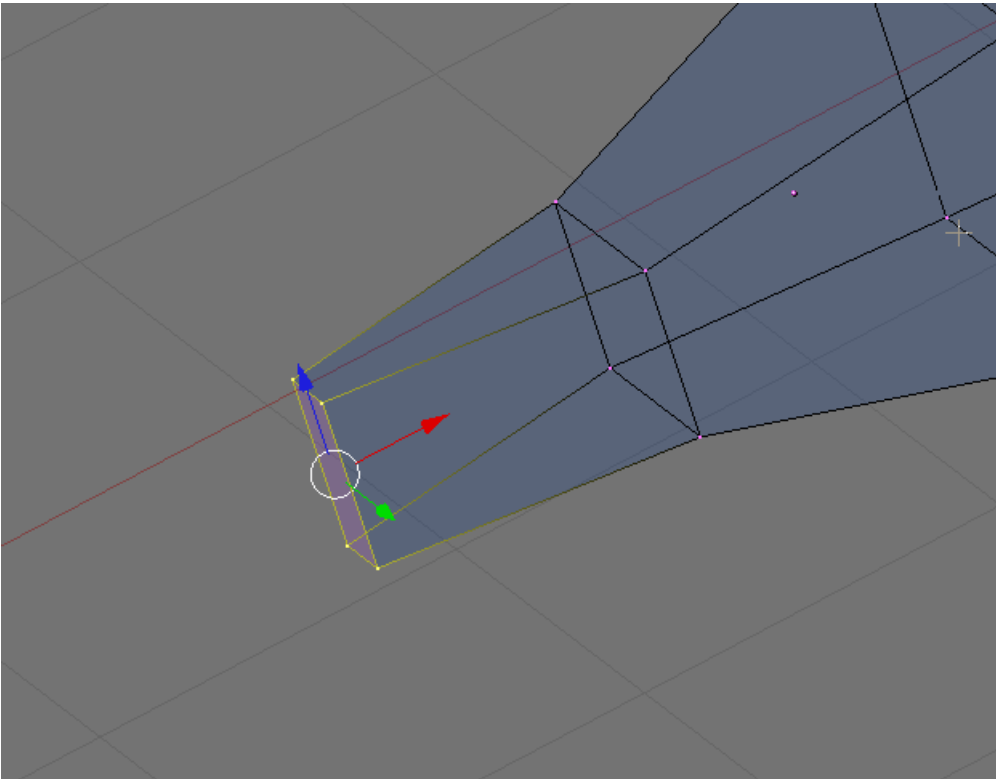
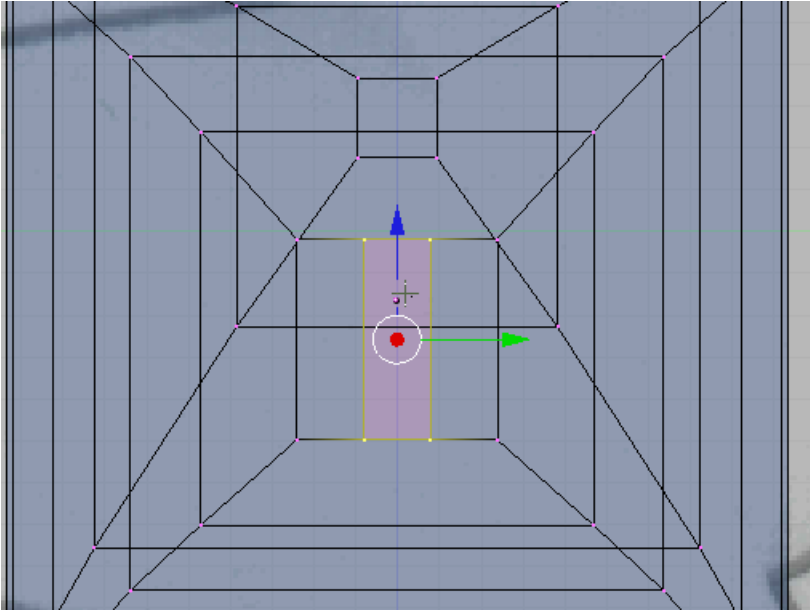
Save your file CTRL-W. Focus in on the tail area. Box select the leftmost group of vertices as shown below.



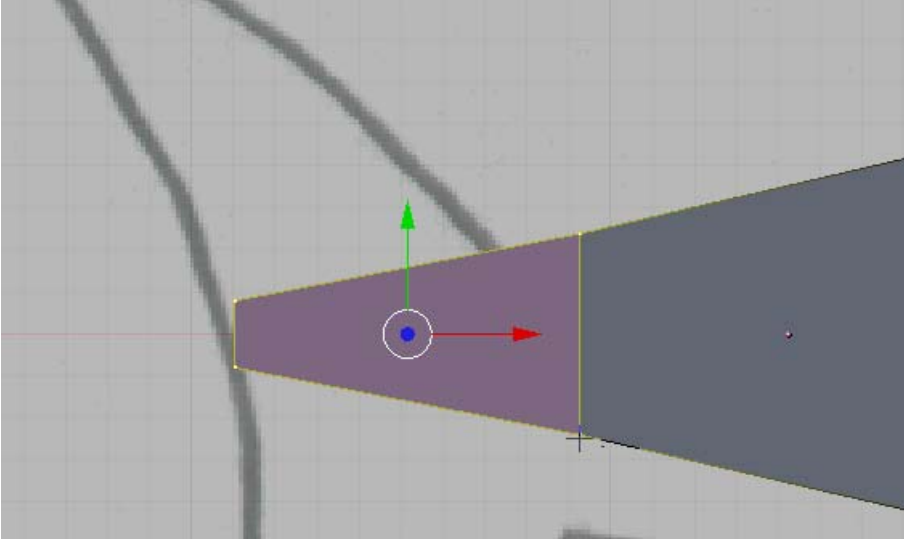
Region extrude them to the left as shown.



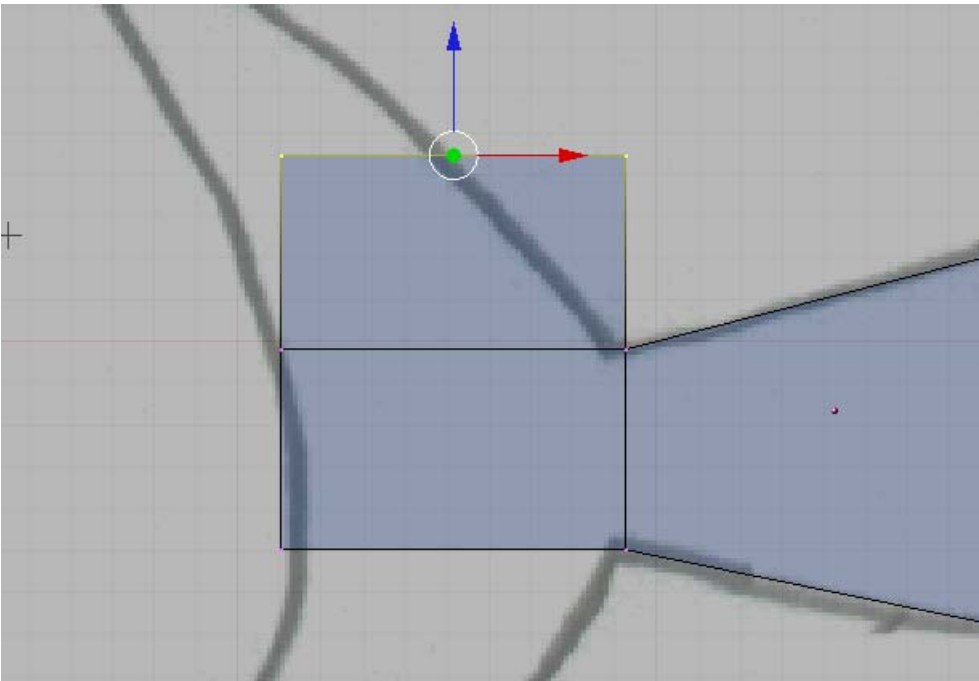
Switch to side view. Press the SKEY (Scale) then press the Y KEY and scale the vertices along the Y axis as shown below.



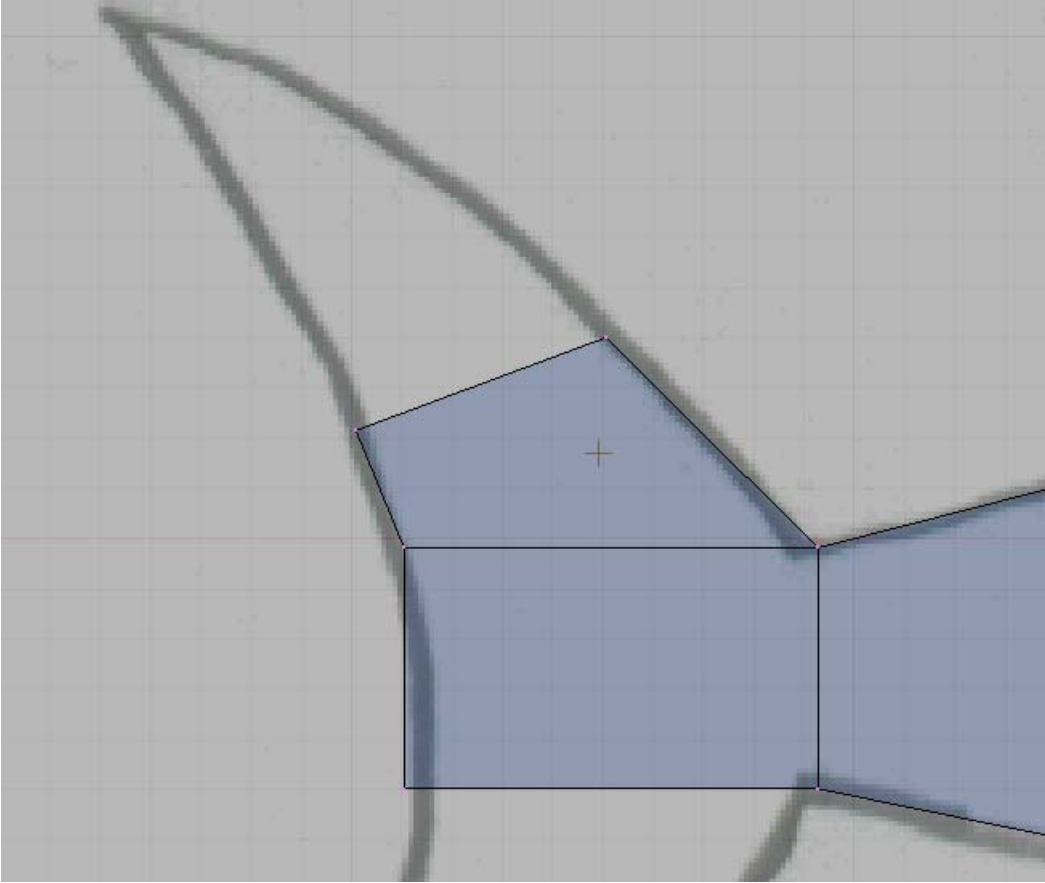
Switch to top view. Press the AKEY to deselect the vertices. Press the ZKEY to Shaded Mode. Box select the top vertices on the tail only as shown.



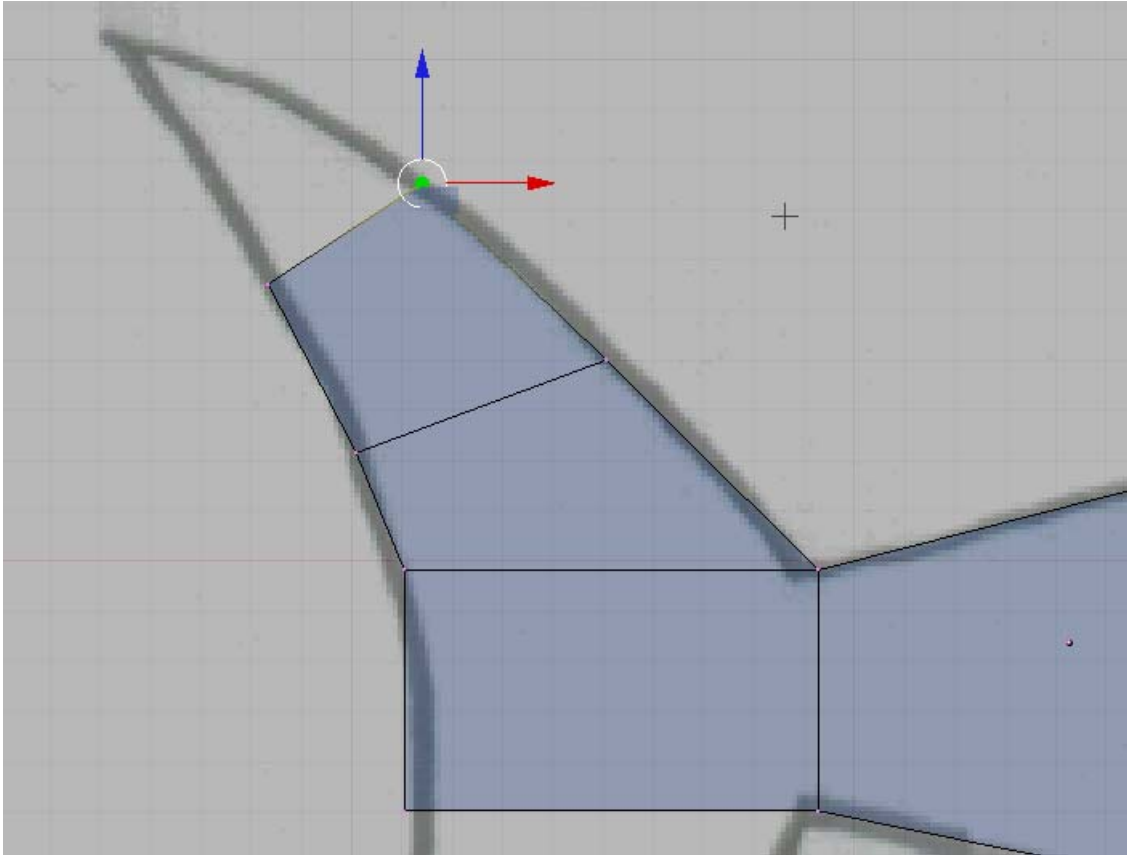
Switch to front view. Press the ZKEY to switch back to wireframe mode. Press the EKEY (Extrude) and region extrude the vertices up as shown below.



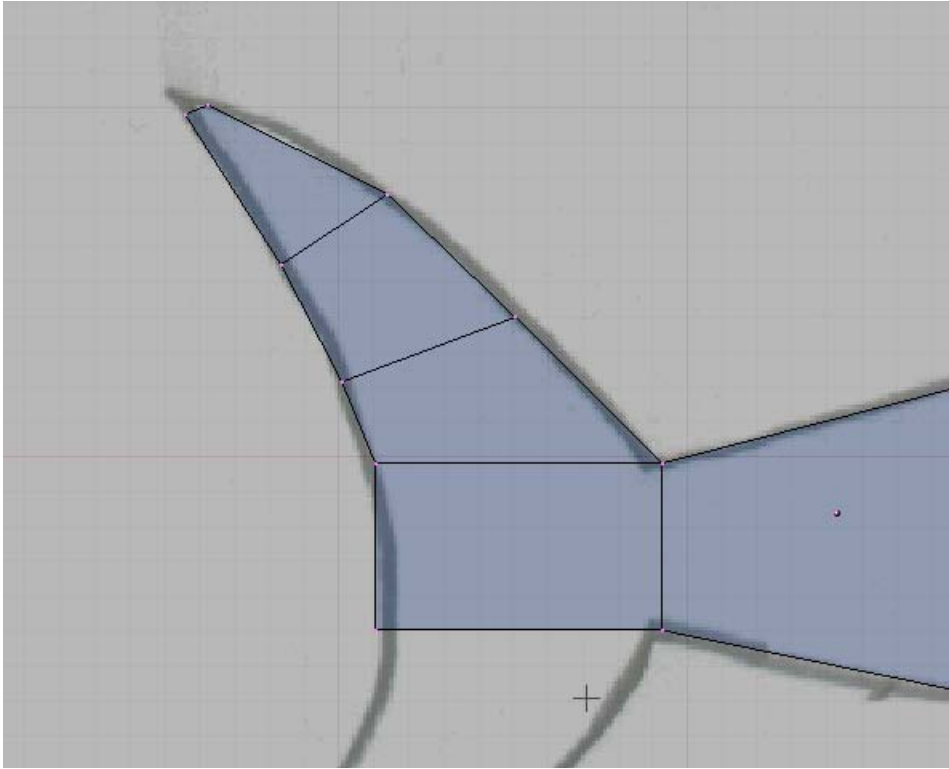
Press the AKEY to deselect the vertices. Box select the 2 groups of top vertices individually and move them as shown below.



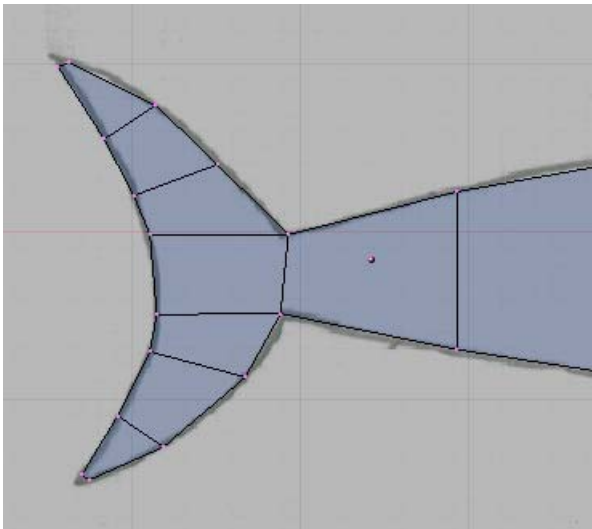
Box Select the top vertices and region extrude again and reposition the vertices as shown below.

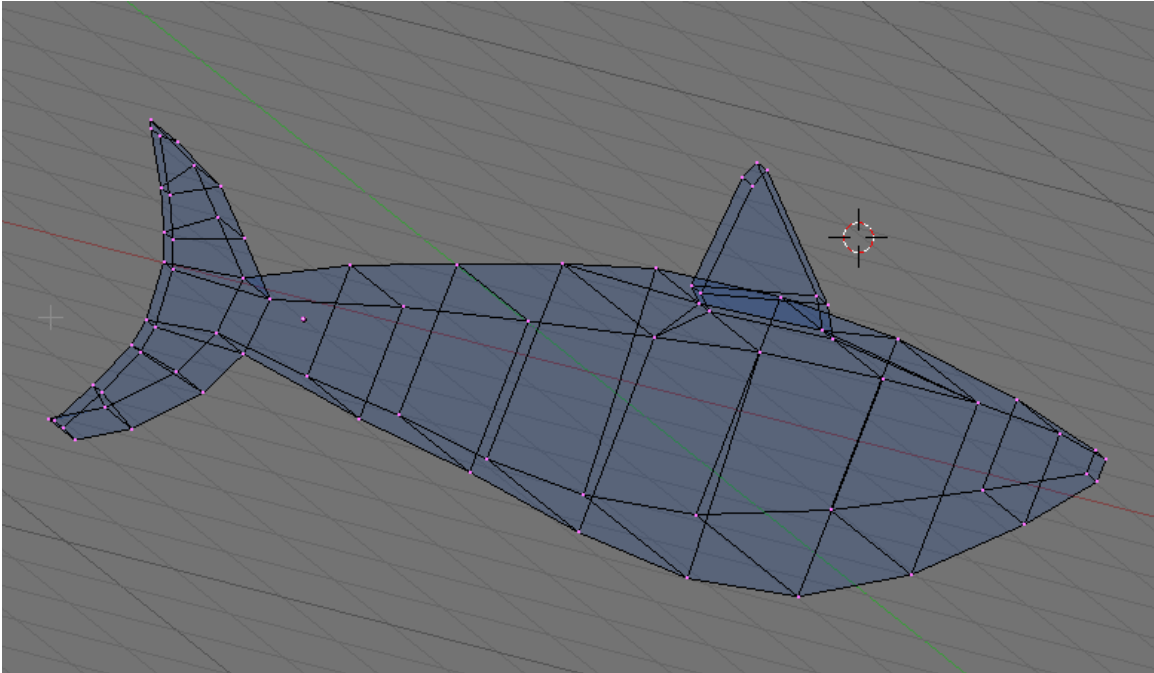


Box Select the top vertices and region extrude again and reposition the vertices as shown below.

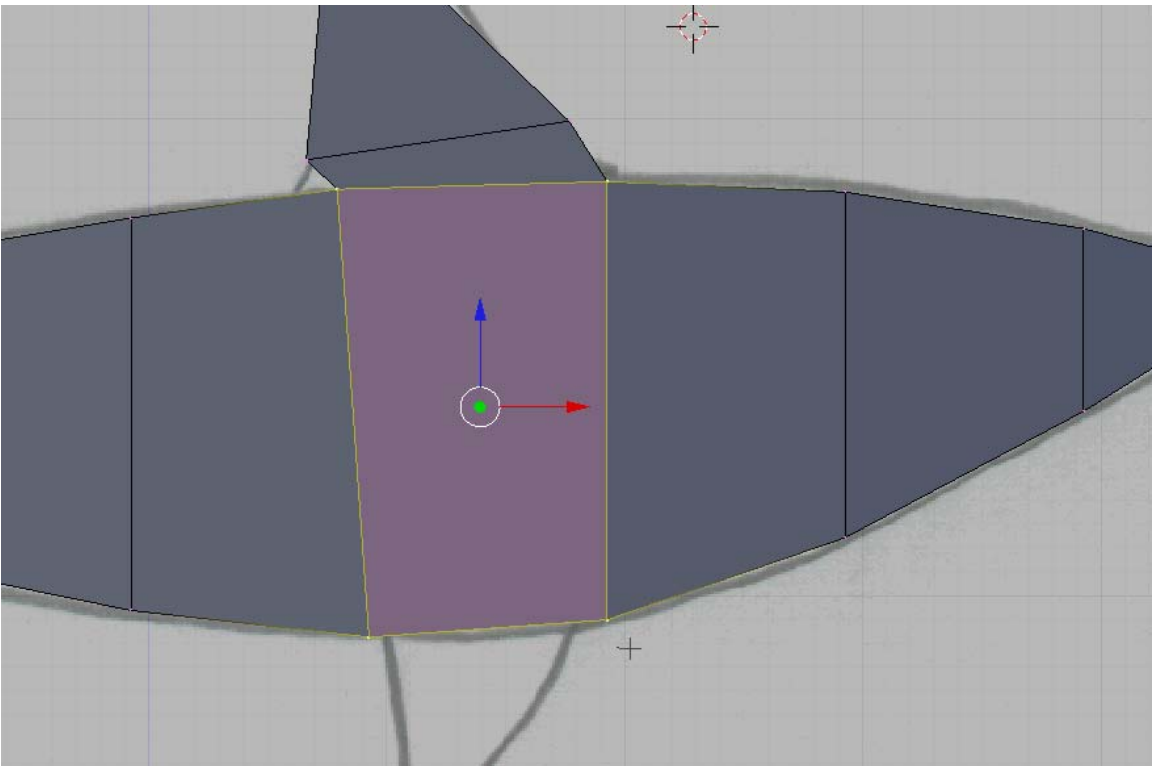


Repeat this process on the bottom forming the complete tail.

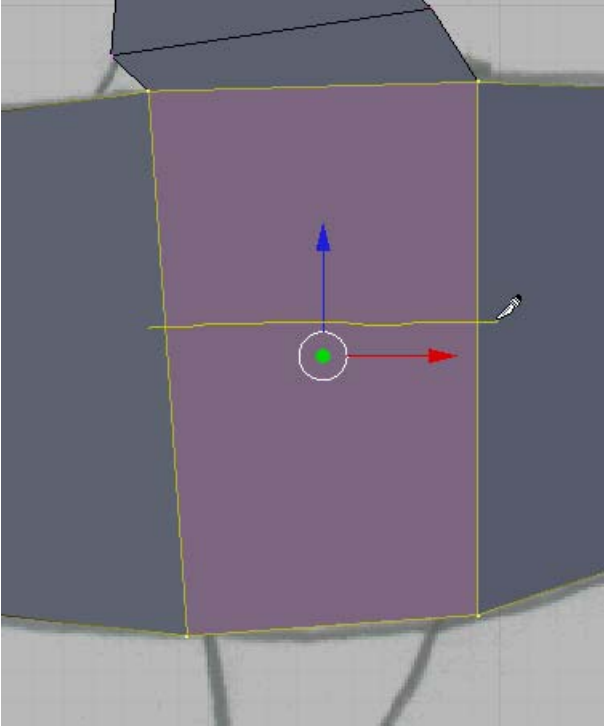




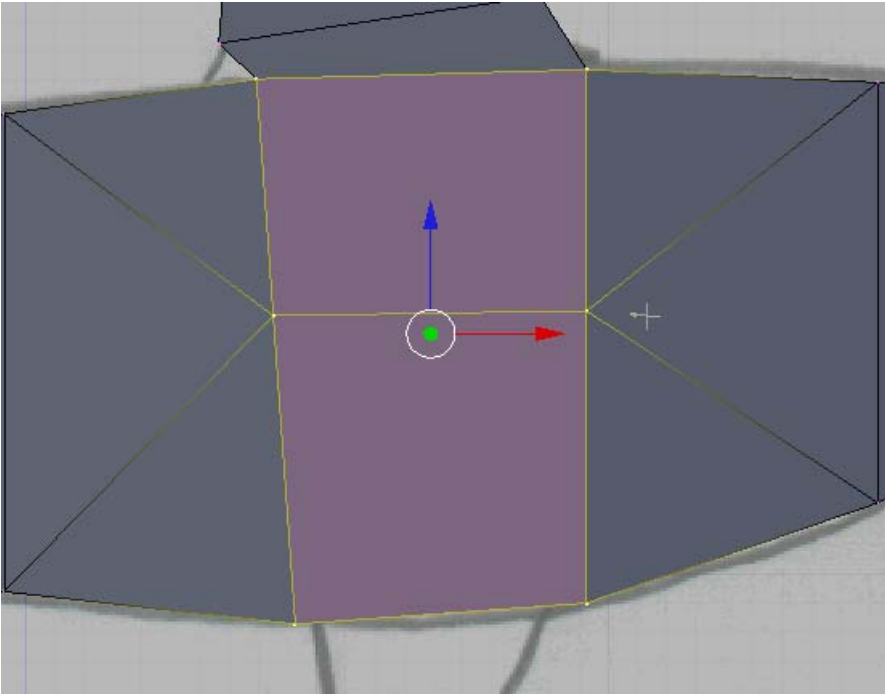
We will now model the shark's side fins. Switch to front view. Press the ZKEY to enter shaded mode. Press the AKEY so no vertices are selected. Box select the face that will hold the shark's right side fin as shown below.



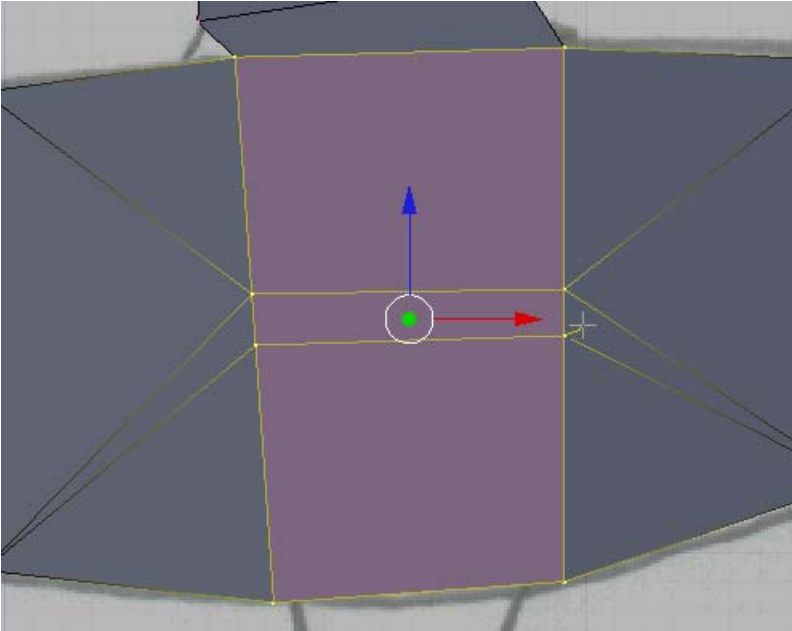
As we did on the top fin we will need to knife divide this face to create the vertices to extrude. Press SHIFT-KKEY. Select Exact Line. Draw a knife line across the edges (slightly off center) as shown below.



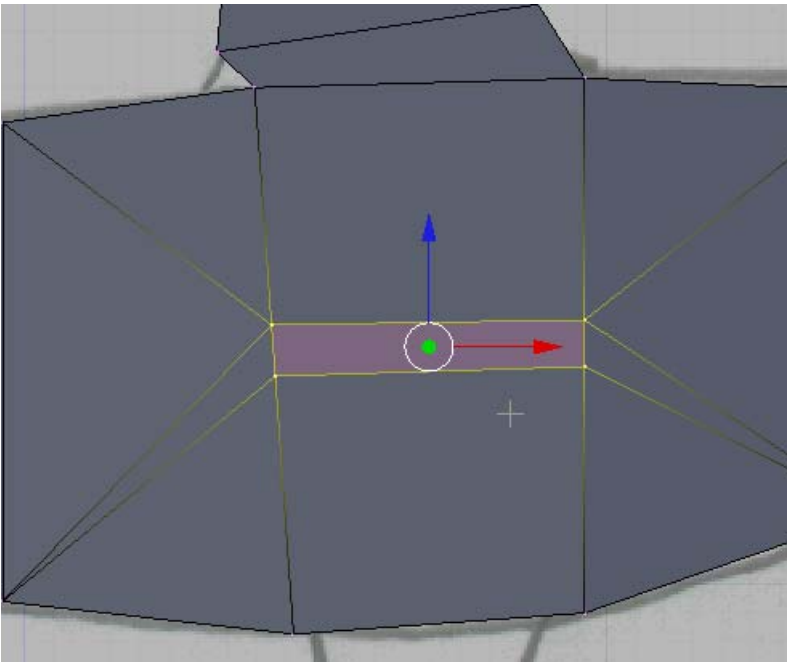
Press ENTER to cut divide the face along the knife line.



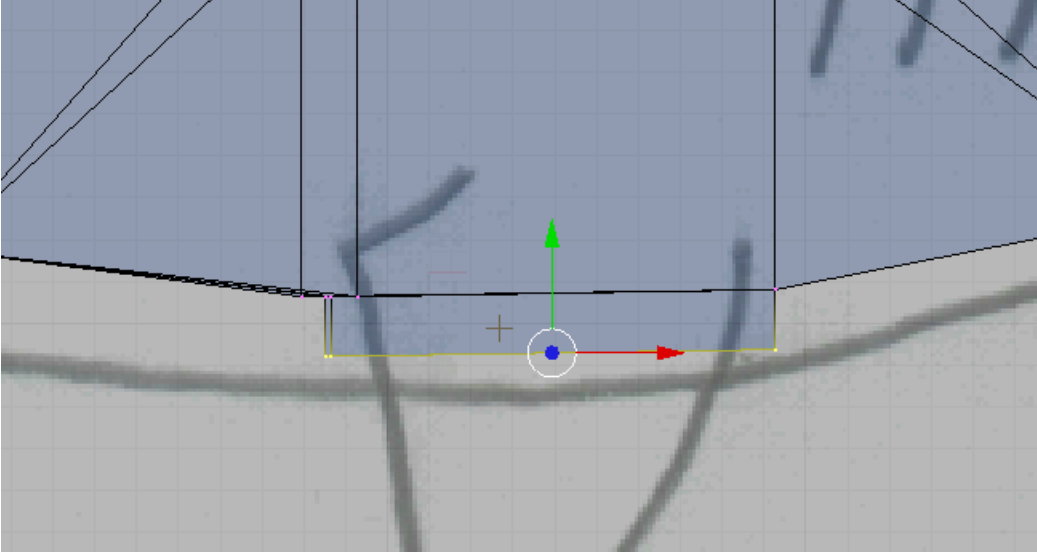
Press SHIFT-KKEY and make another knife line division on the other side of the center as shown.



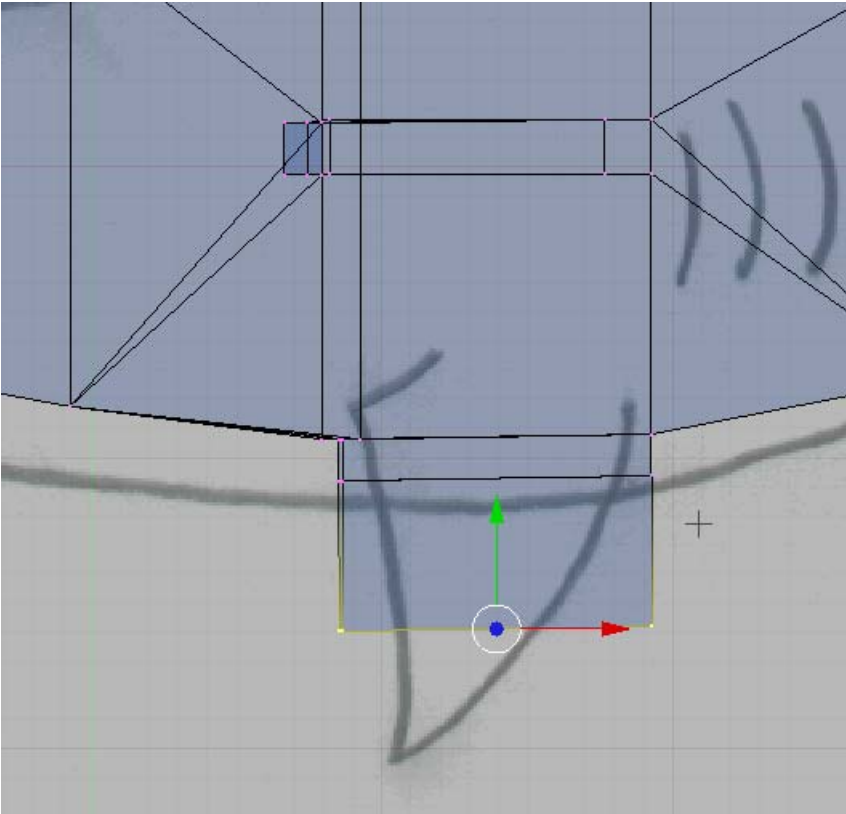
Press the AKEY to deselect the vertices. Box select the new face as shown below.



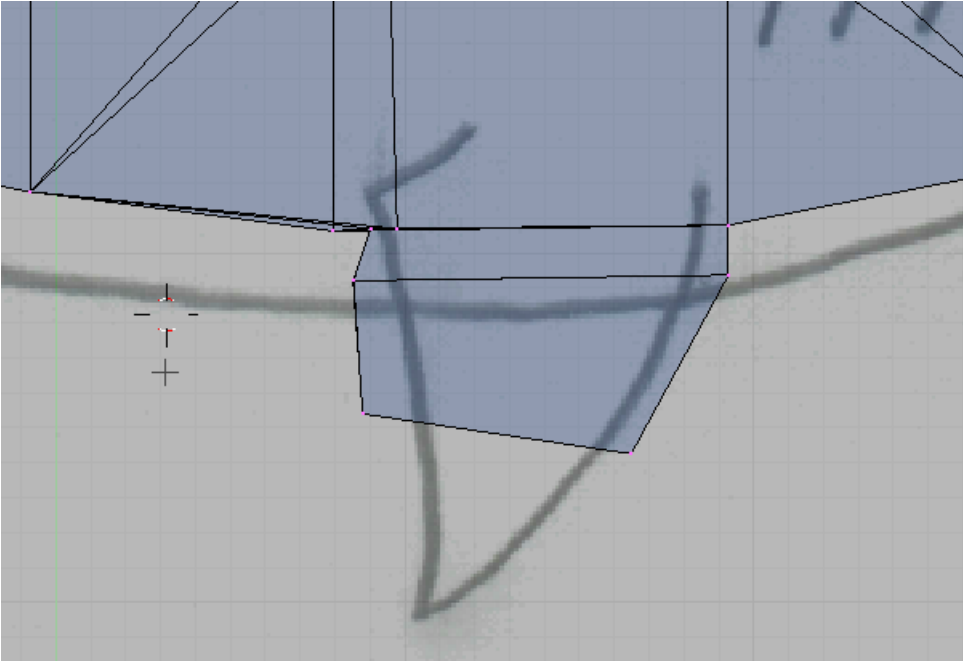
Press the ZKEY to return to Wireframe Mode. Switch to top view. Press the EKEY (Extrude) and region extrude the vertices out a bit as shown below.



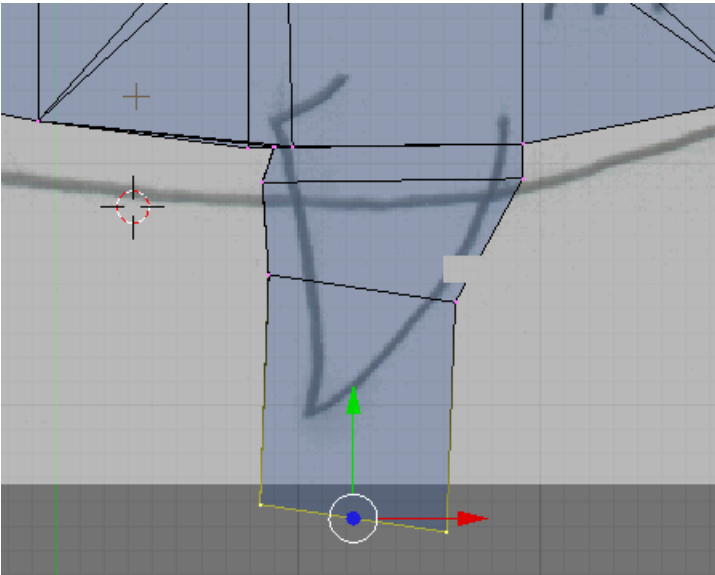
Press the EKEY (Extrude) again and region extrude the vertices out as shown below.



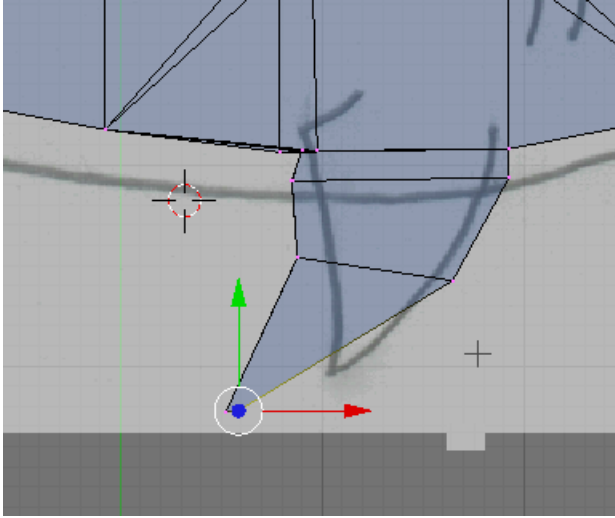
Press the AKEY to deselect the vertices. Select the individual groups of vertices and move them as shown below.



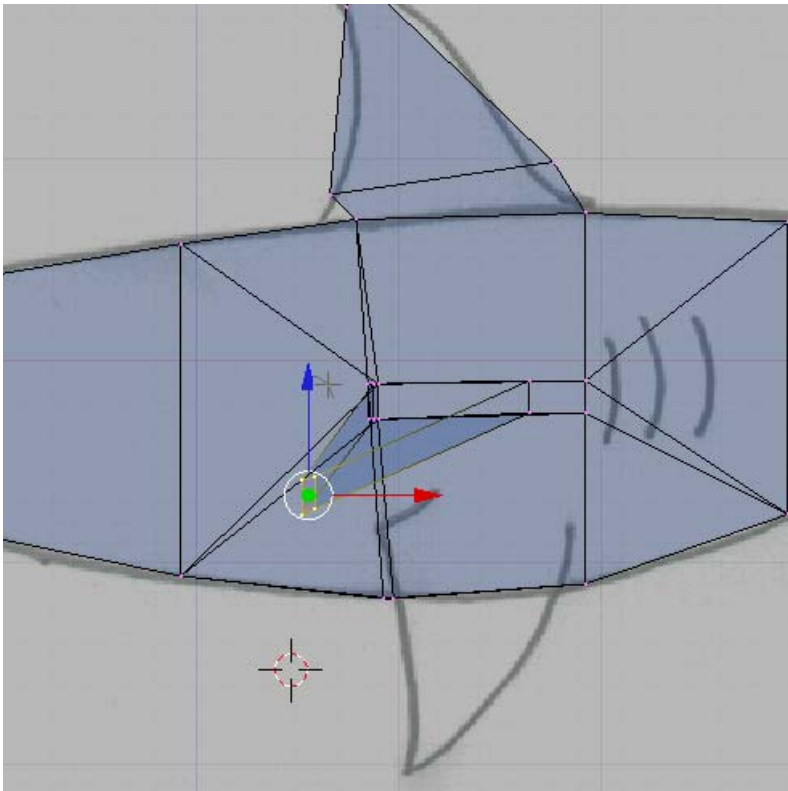
Select the bottom vertices and Press the EKEY (Extrude) again and region extrude the vertices out as shown below.

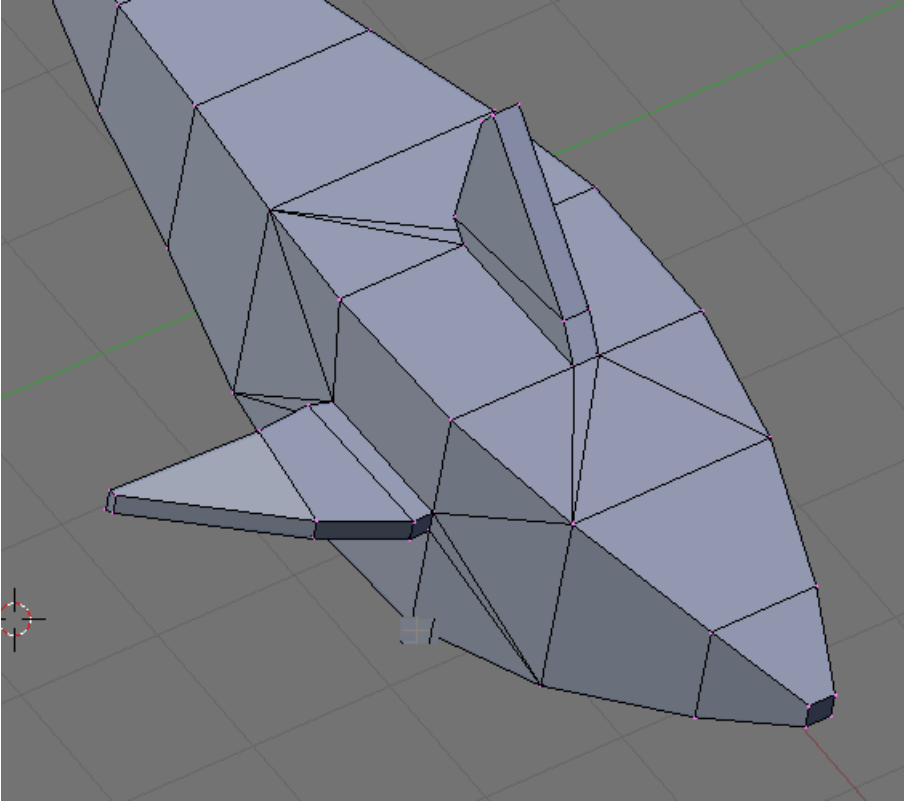


Press the AKEY to deselect the vertices. Select the individual groups of vertices and move them as shown below.

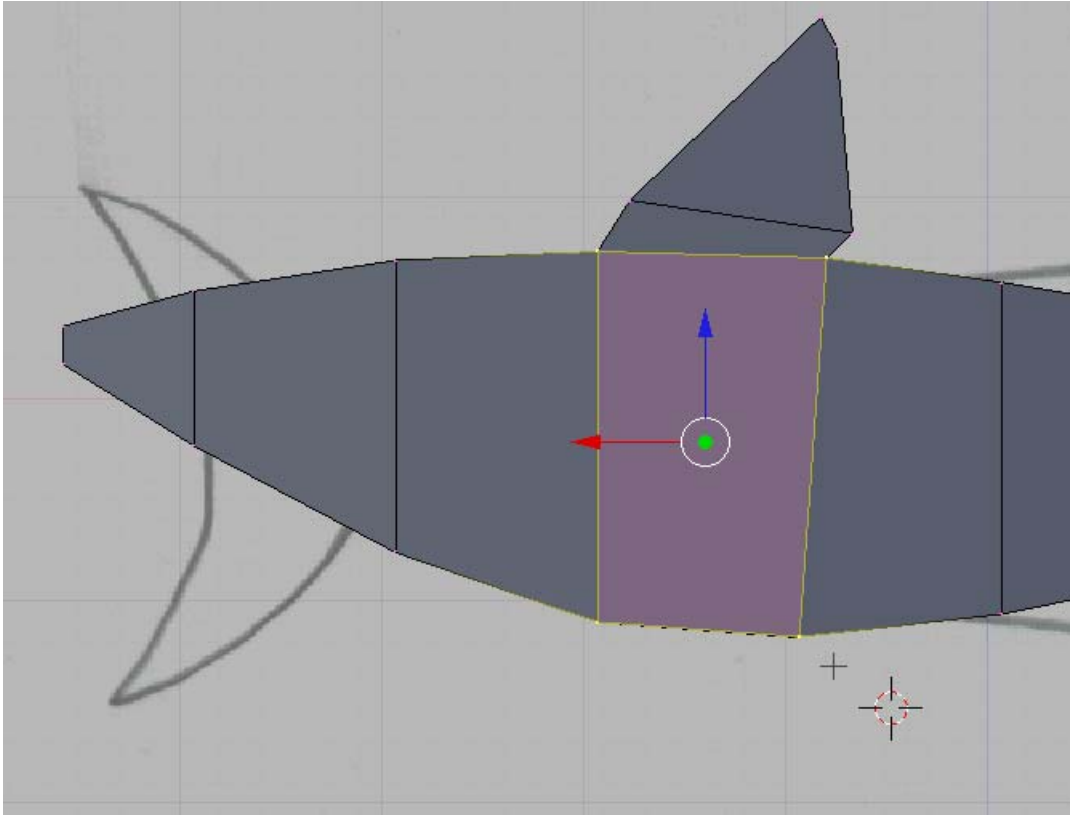


Box select the end vertices. Switch to front view. With the fin end vertices still selected move them down a bit as shown.

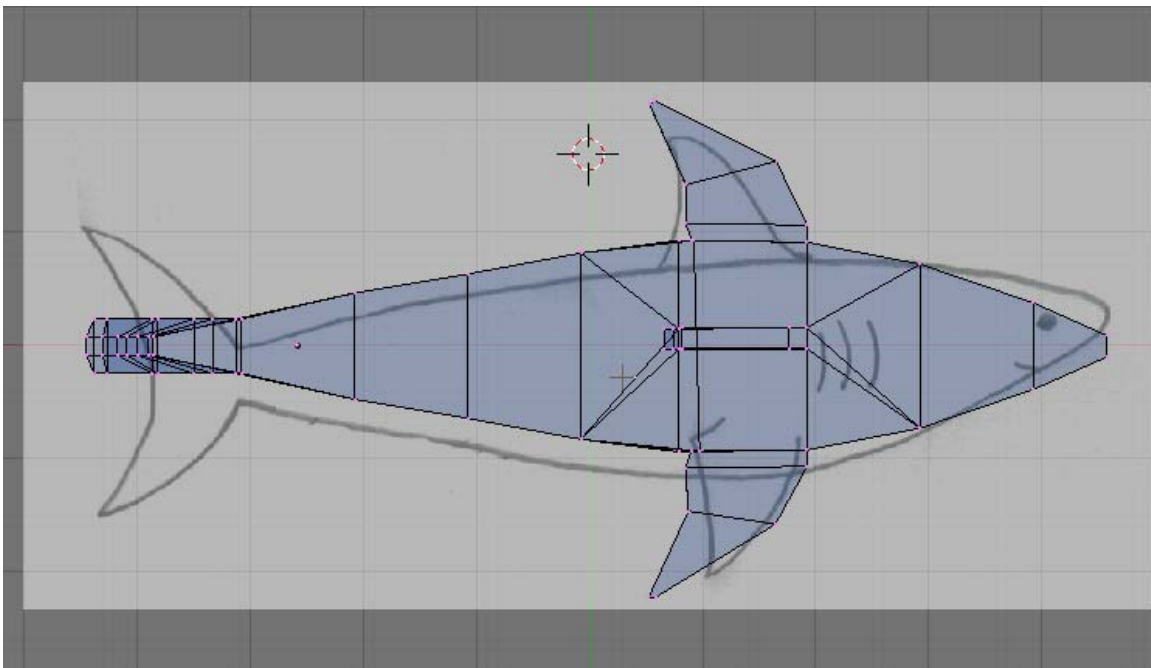




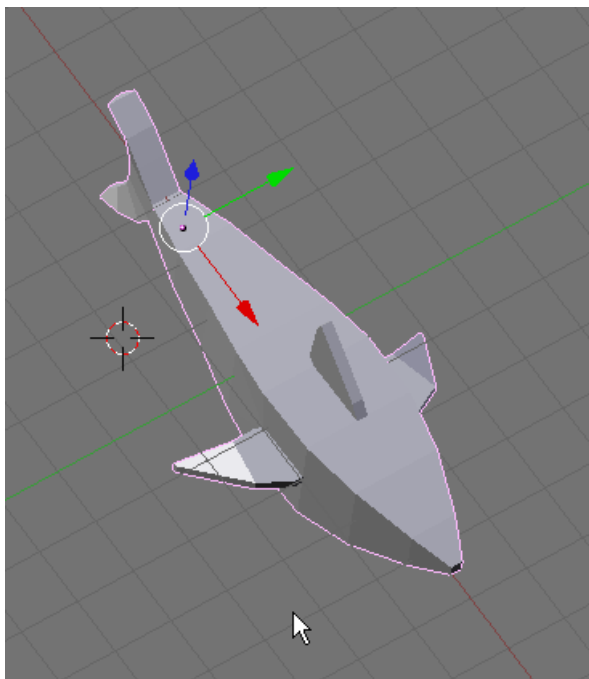
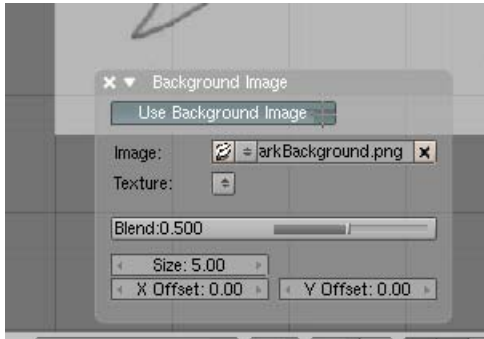
Press the ZKEY to enter Shaded Mode. Press CTRL-NUM1 to display back view. Box select the vertices to select the face that the other side fin will be modeled.



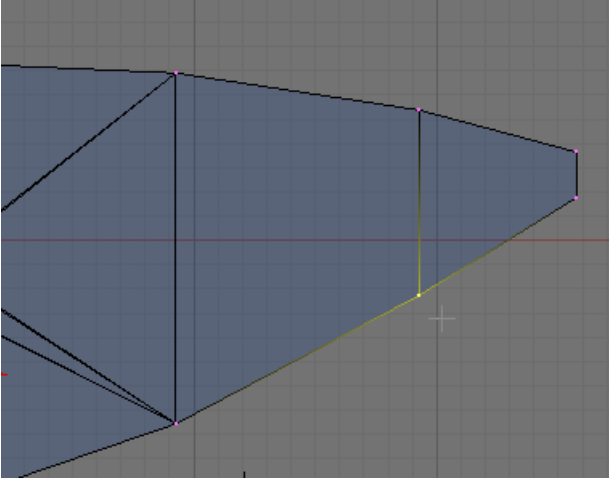
Use the Knife (SHIFT-K) and Extrude (EKEY) tools to make a fin on this side of the shark to match the other side as shown.



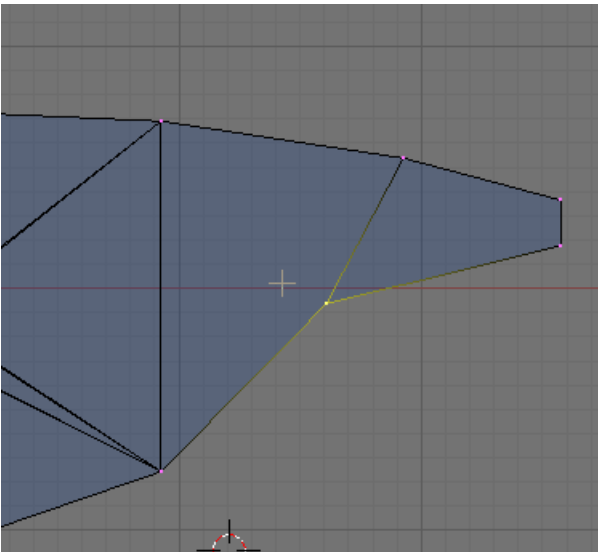
Press View / Use Background Image and press the Use Background Image button to remove the background image.



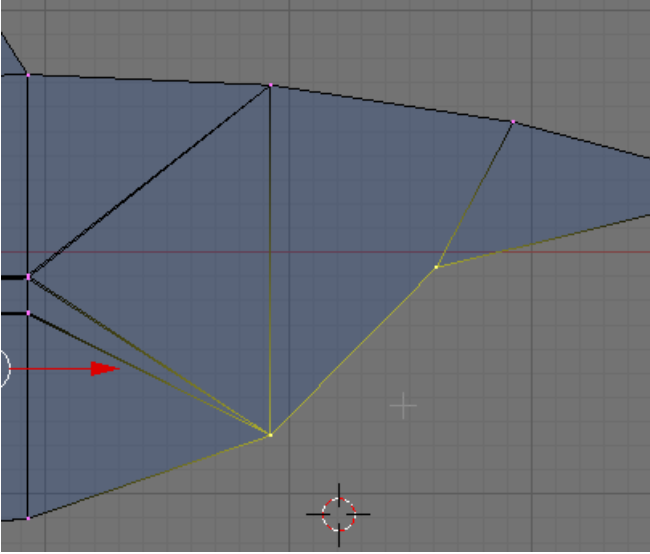
**Save your file CTRL-W.** Make sure you are in wireframe mode. Switch to front view. Box Select the group of vertices near the shark's mouth as shown.



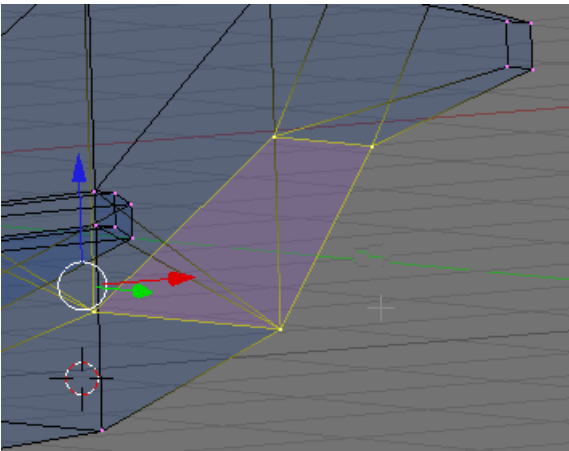
Press the GKEY and move the vertices back and down a bit as shown below.



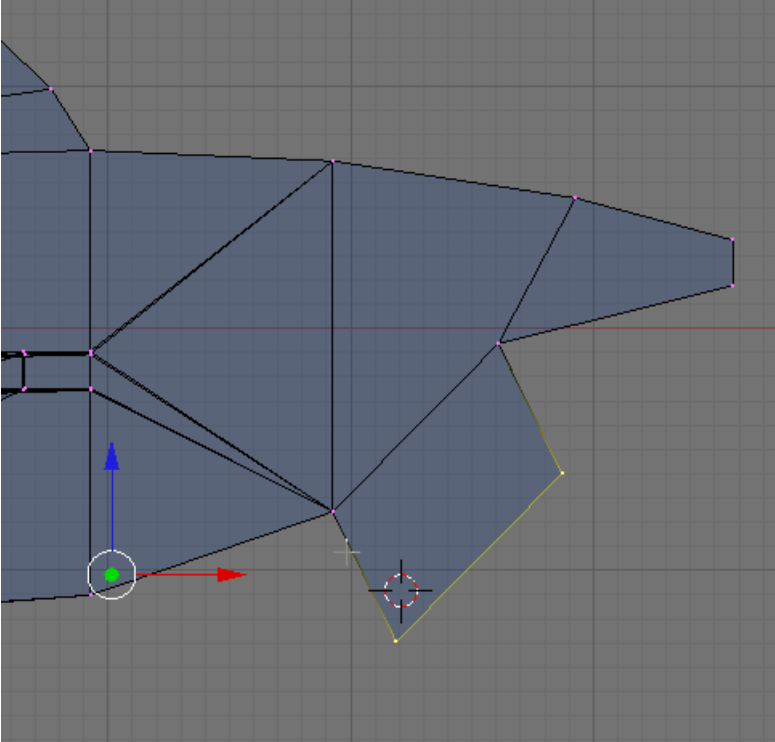
Use the Box Select to ADD the bottom vertices to the selection as shown.



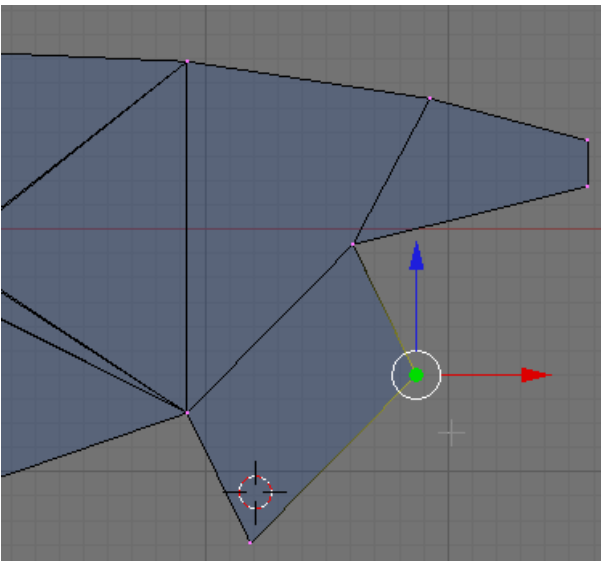
Note: in effect we have selected the face of the bottom of the mouth.



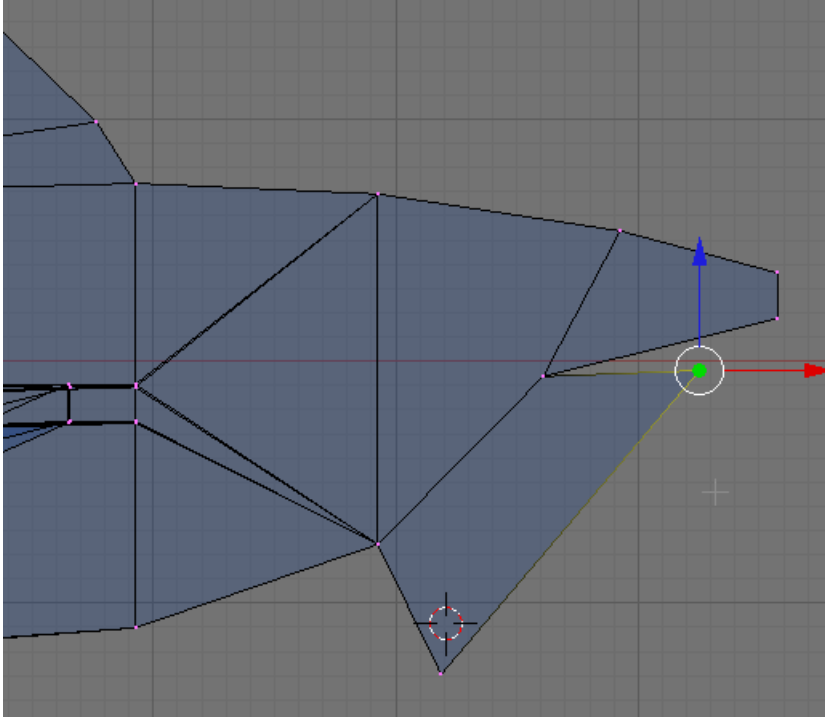
With these vertices selected press the EKEY (Extrude) and Region extrude the bottom of the mouth as shown below.



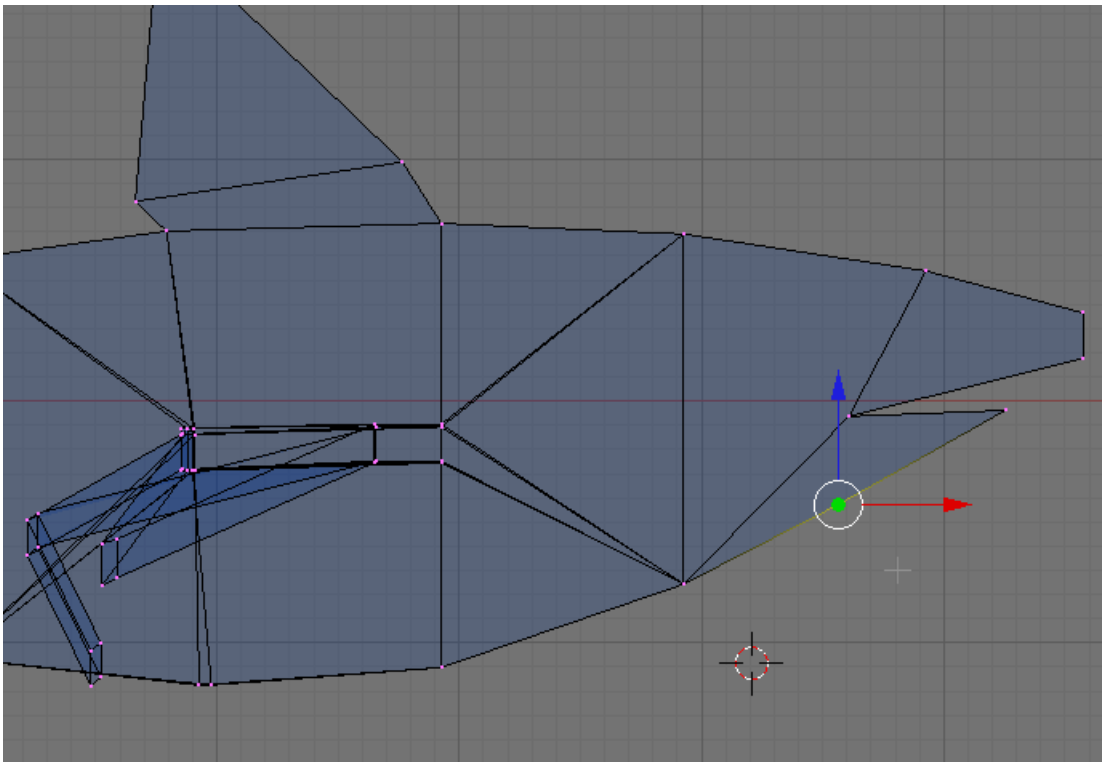
Press the AKEY to deselect the vertices. Box select the top group of vertices (of the mouth bottom) as shown.



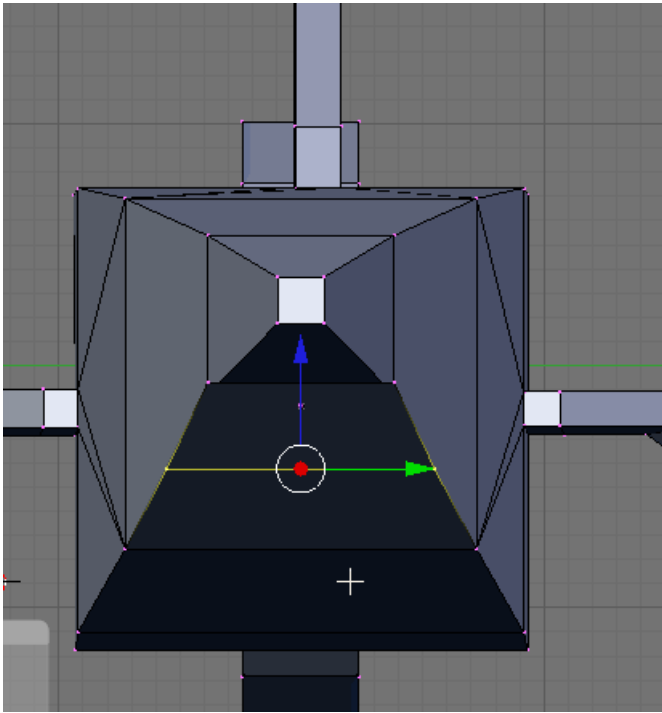
Grab and move the vertices as shown.



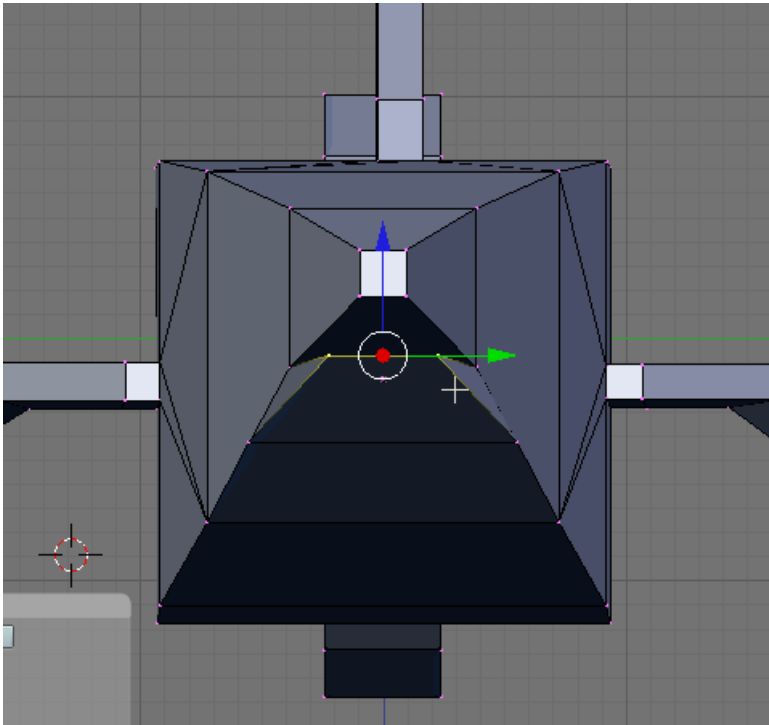
Grab the bottom vertices and move them as shown below.



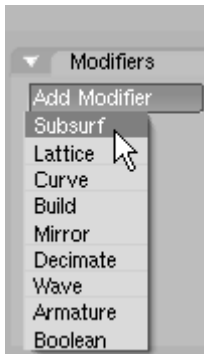
Press the ZKEY to shift to Shaded Mode. Switch to side view. With the last vertices group still selected scale the vertices down a bit as shown.



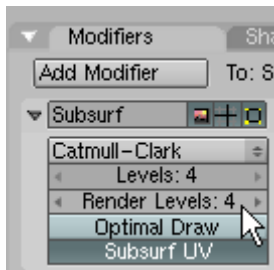
Press the AKEY to deselect the vertices and select the two vertices above them (top of the mouth). Scale these vertices down a bit as shown.



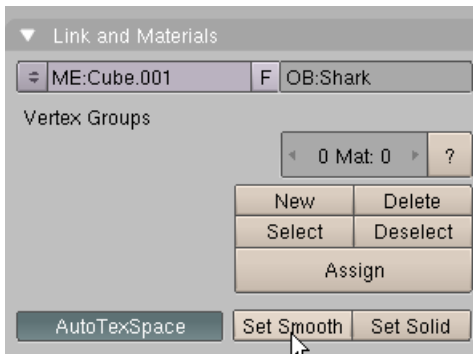
Save your file CTRL-W. Press the AKEY to deselect the vertices. **TAB out of Edit Mode.** In the Modifier Panel press the Add New button. Select the SubSurf modifier from the modifier list.



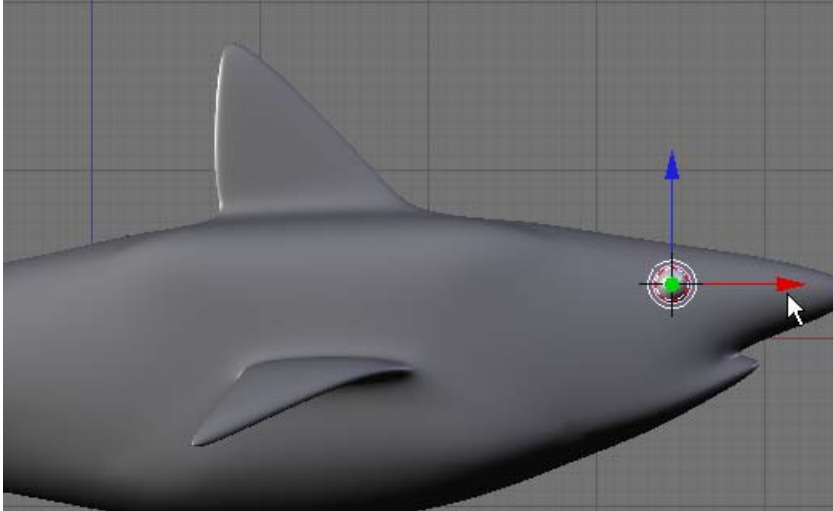
In the SubSurf controls set the Levels to 4 and the Render Levels to 4.



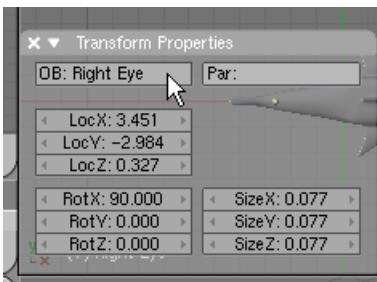
In the Link and Materials Panel press the Set Smooth button.



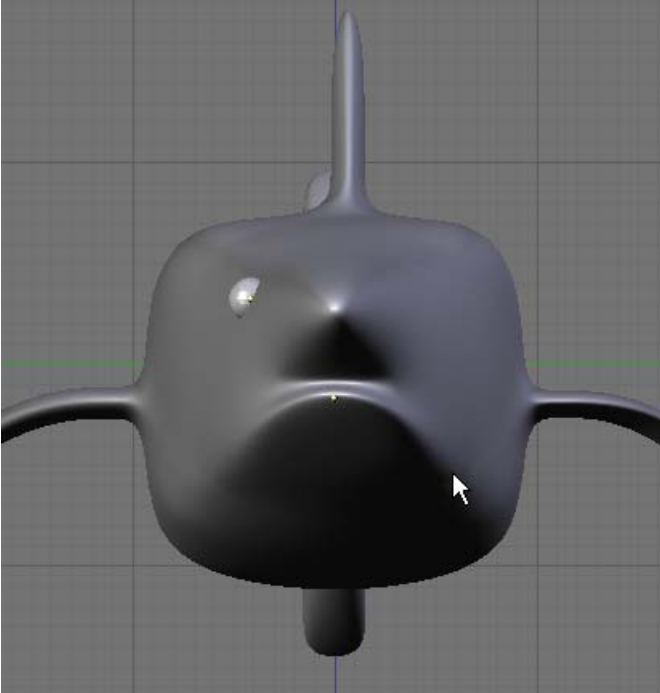
We will now add some spheres to serve as the shark's eyes. Switch to front view. Place your 3D cursor in the shark's eye position. Press Space / Add / Mesh / UV Sphere (32 Segments and Rings). TAB out of Edit Mode and scale the eye down as shown below.



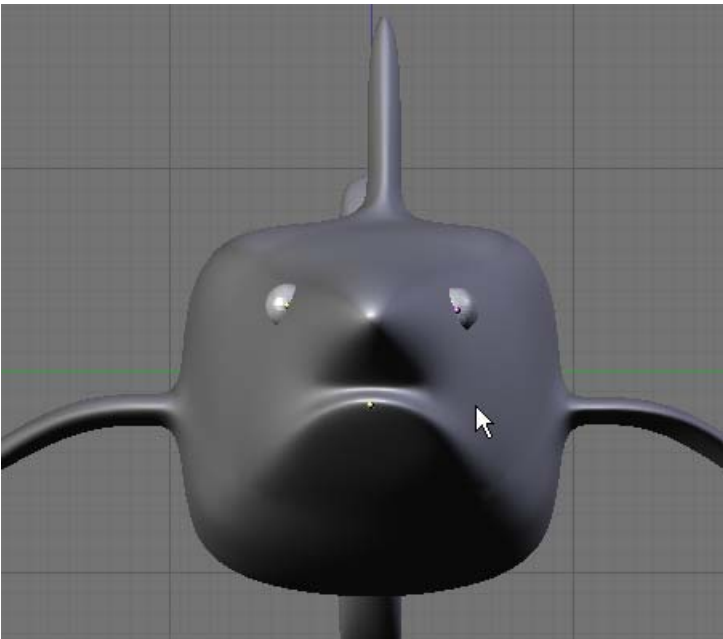
In the Transform Properties Panel name this object Right Eye. In the Link and Materials panel press the Set Smooth button.



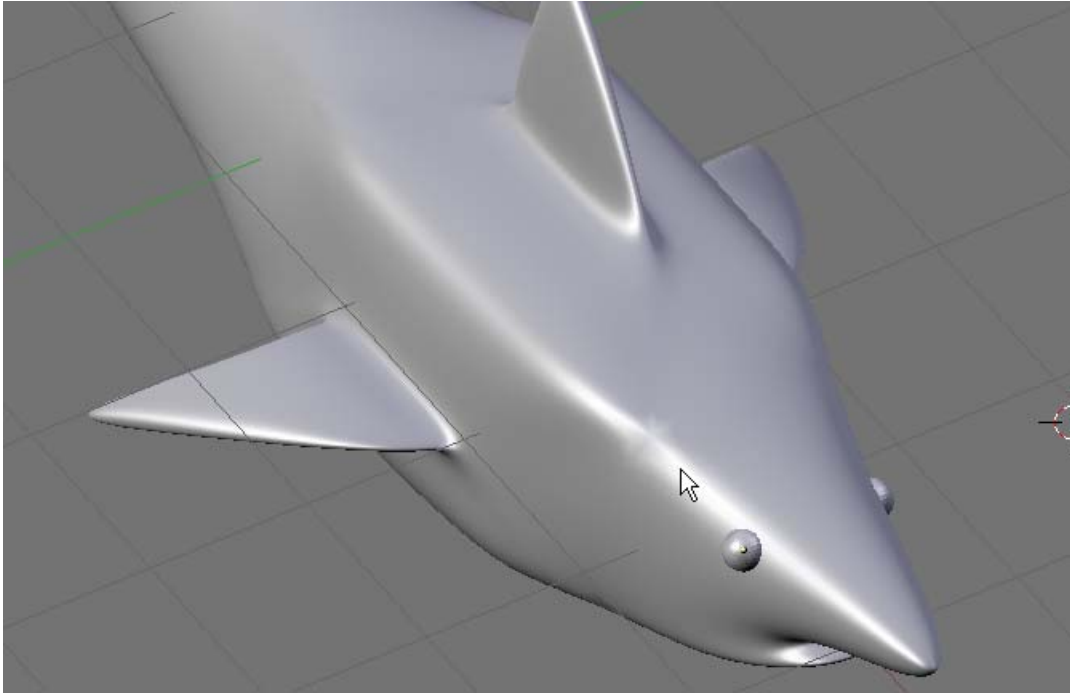
Switch to side view and move the eye into the correct position.



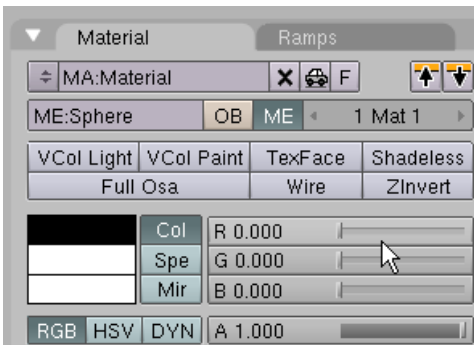
With the right eye object selected press SHIFT-D (Duplicate) and move the duplicate eye to the correct position.



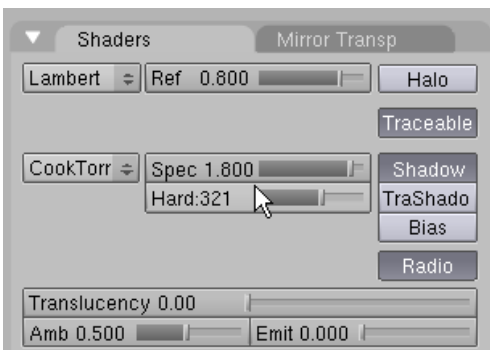
Name this duplicate eye Left Eye.



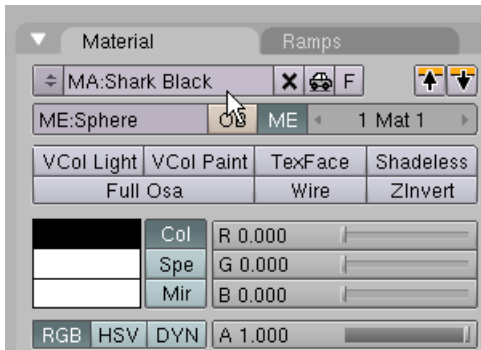
**Save your file CTRL-W.** Select the Right Eye object. Press F5 (Shading). Press the Add New Button. In the Materials Panel adjust the color sliders to 0 forming a Black color.



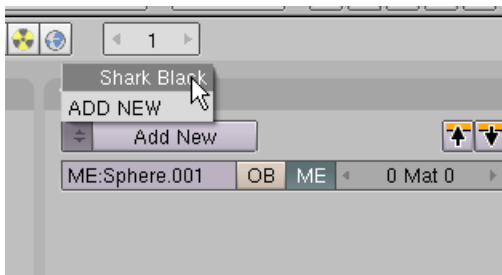
Press the Shaders Tab. In the Shaders Panel set the SPEC to 1.8 and the Hardness to 321.



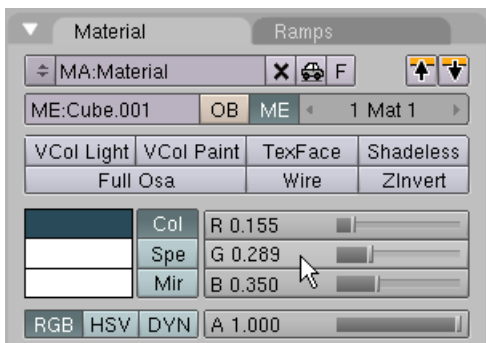
In the Material panel name this material Shark Black.



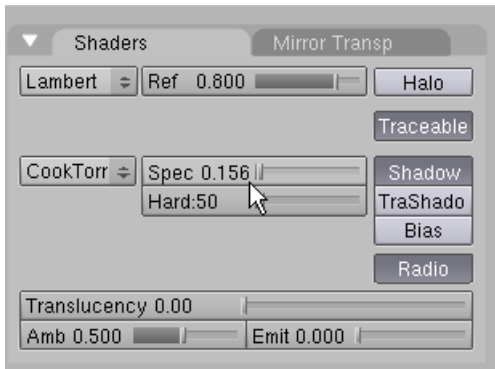
Select the left eye object. Select Shark Black from the dropdown menu next to the Add New button.



Select the Shark object. Press the Add New button. In the Materials Panel adjust the color sliders to form a dark blue green color. R= .155, G=.289, B=.350



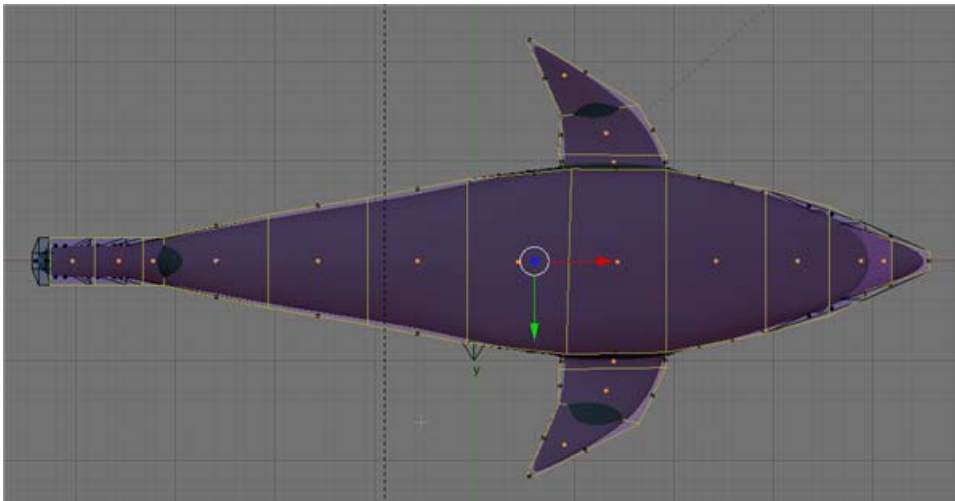
Press the Shaders Tab. In the Shaders Panel set the SPEC to .156



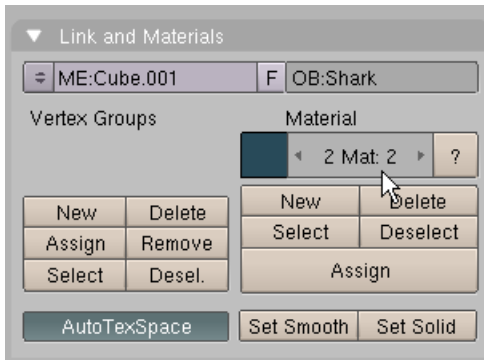
Sharks have a dark upper body color and a light under body color. Press F9 (Editing). Switch to Bottom View CTRL-NUM7. **TAB into Edit Mode**. Make sure you are in Shaded Mode (ZKEY if needed). Change the selection from vertex to face.



Select the bottom faces of the shark object as shown below.

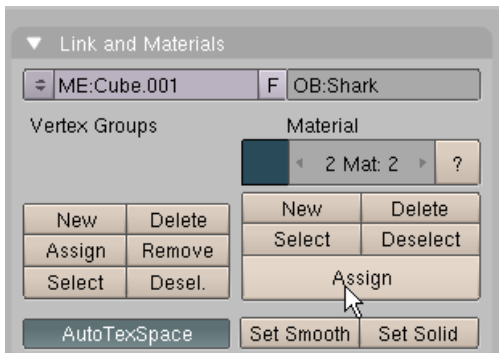


In the Link and Materials Panel press the New button.



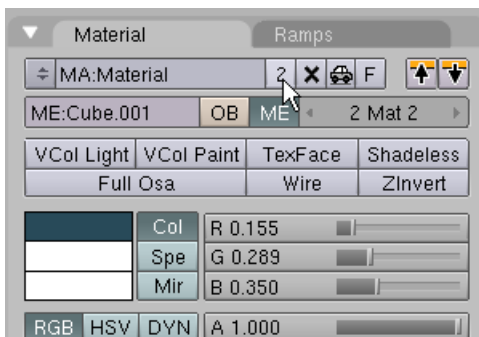
Note that the material now shows “2 Mat 2” meaning that we are working on the second material on this object.

With the bottom shark faces selected click on the Assign button.

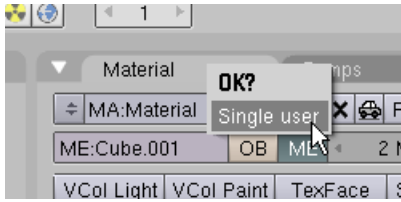


This assigns those faces to the second material. Press F5 (Material)

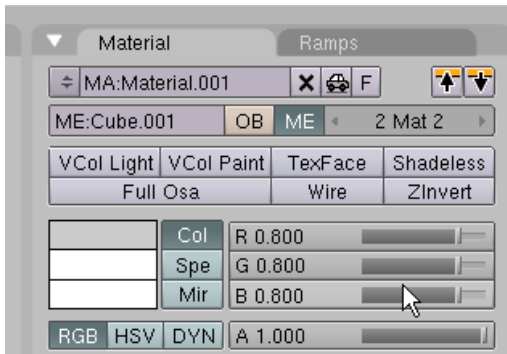
Note the number “2” button in the Links and Materials panel.



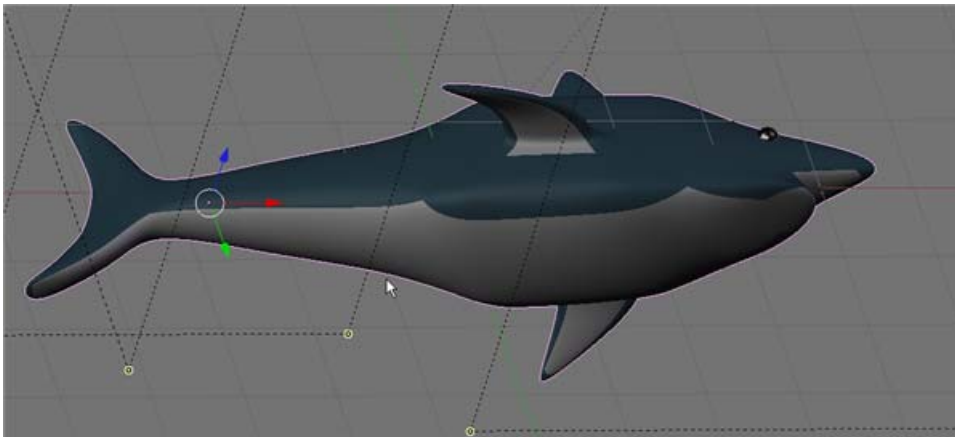
Press this button and select Single User.



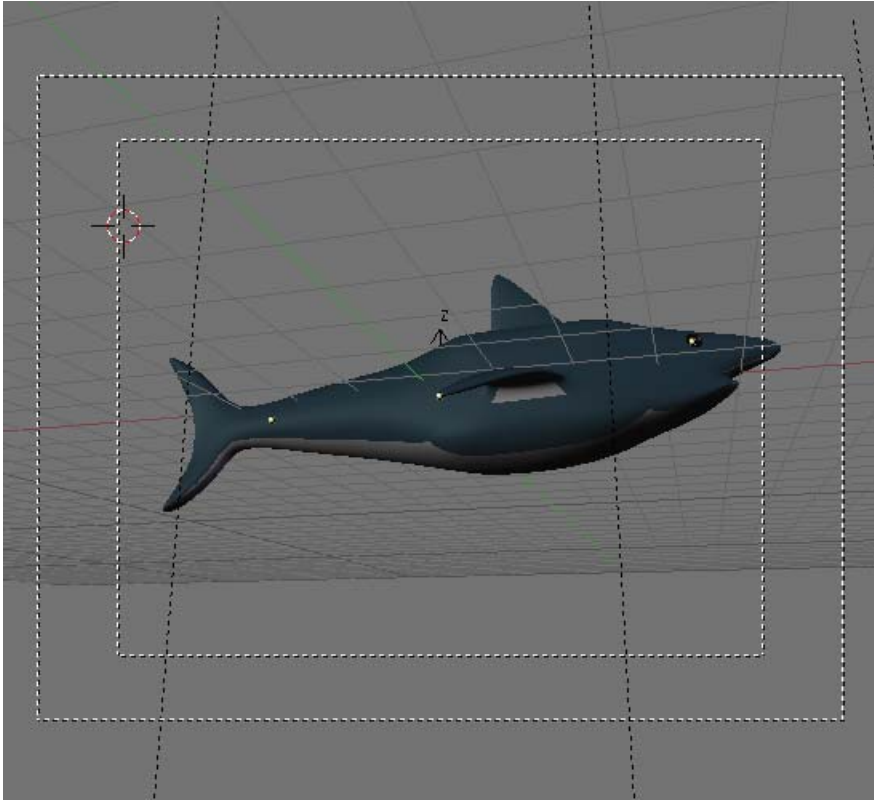
Adjust the color sliders to make a light grey color (RGB = .8).



The shark now has two colors assigned to it.



Add layer 10 (camera and camera focus) to the scene. Adjust the camera and camera focus so that the camera view looks something like shown below.



Add layer 20 to the scene which contains the lighting setup. Render F12.



A finished copy of this tutorial named SharkComple.blend is located in the Shark.zip file.