

Using a Geographic Information System (GIS) to look at marine fisheries data

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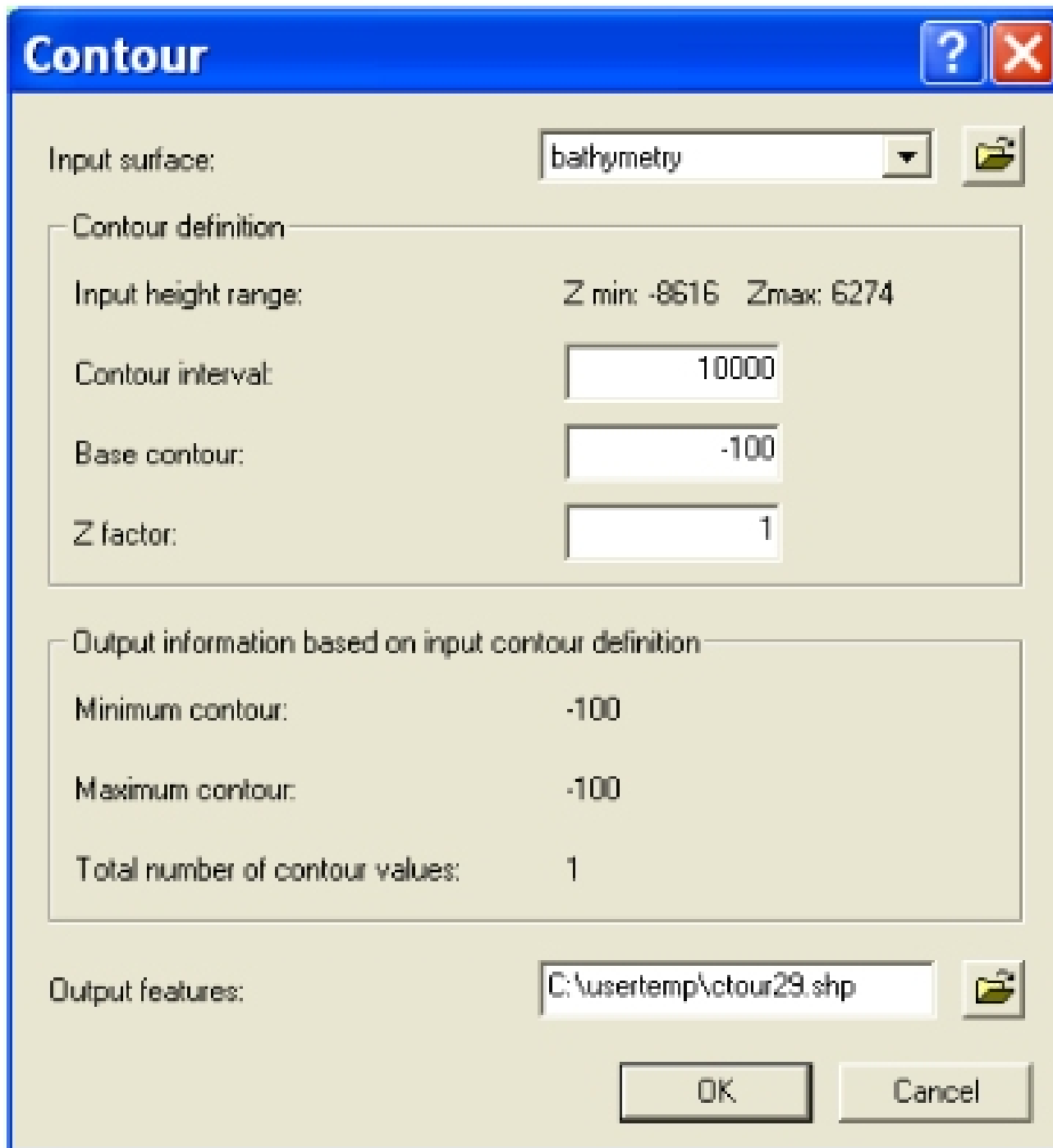
Introduction

GIS is a tool that is becoming well used in many aspects of science and management where space, or location, plays an important role. Location plays a vital role in marine fisheries management, as the environment, including bathymetry, or depth, and bottom type determines which fish may be present and how difficult it is to capture those fish. In this exercise, you will look at the abundance of a single species of fish, Atlantic Cod.

Atlantic Cod is considered a ground fish, many of which have been over fished in the last 40 or more years. In response to this, the National Marine Fisheries Service (NMFS), a branch of the National Oceanic and Atmospheric Administration (NOAA) has closed several important parts of the northeast traditional fishing grounds. The purpose of this exercise is to determine if you can see the effects of this closure through survey data collected by NMFS over the last 44 years. You will do this by evaluating the average size of Atlantic Cod over the last 44 years. You will also look at the average scallop size over a shorter period.



Click on the dropdown list (arrow to the right of 'Spatial Analyst') and select Surface Analysis then Contour. You should see a form like this:



Fill out the form as you see here, except the Output. Put those in the drive the instructor tells you during the class. The contour interval of 10000 ensures that only a single contour line will be drawn, the base contour, which will be the 100 meter depth contour. Once you click OK and the processing is complete, check the map for the contour and look for Georges Bank and Grand Banks. Notice where the EEZ for Canada and the United States are in relation to both of these banks.

Next, zoom in to the northeast region (as defined by the National Marine Fisheries Service), from North Carolina to Nova Scotia. The zoom tool, changes the functionality of the cursor so that you can click on the lower left corner of where you want to look, keep the mouse cursor down, the draw the cursor to the upper right corner and release the button. The zoom cursor is the left most of the tools below: