

Shoreline Identification Plugin

The method identified in this work can be applied using a plugin QGIS v3.x developed by us and downloaded at the GitHub link: https://github.com/mluppichini/Shoreline_QGIS_Plugin.

The first step is to download the zipfile called “shoreline.zip”. The second step is to use QGIS v 3.x and to install the plugin with the specific utility (Figure S1). The utility is in Plugins/Plugins and Settings/Install from ZIP.

After installation of the plugin a new icon is visible on the QGIS toolbar: when clicked, an interface is opened (Figure S2). The interface is composed by three tabs: “Run algorithm”, “Information” and “Log”. The first tab allows to set the input used by the algorithm:

- 1) **DEM raster** requires the topography of the beach.
- 2) **Transects layer** requires the vector layer of the transects used to calculate the shoreline. The transects must be designed with a sea-land orientation and they must have an order field.
- 3) **Order field** is the field of a transect layer that can be both numeric and alphabetic. It is used to process the transects with a specific order by which the shoreline will then be constructed.
- 4) **Delta X** is the dimension of the step used to analyze the beach profile.
- 5) **R2 limit** is the limit of R^2 above which you pass from a sea profile to an exclusively beach profile.
- 6) **Output Shoreline** allows to save the Shapefile result.

By clicking on the “OK” push button, the plugin executes the algorithm. All errors and information on execution of the algorithm are recorded in the “Log” tab. All information on this work ((and where it is reported)) can be found in the “Information” tab.

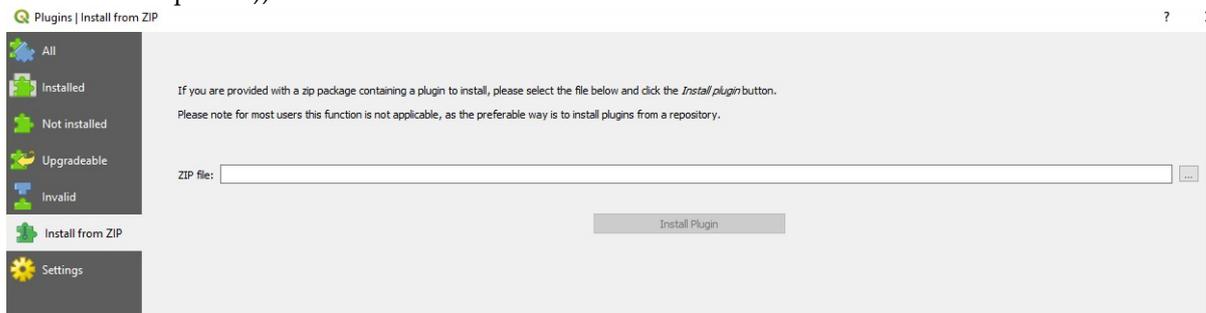


Figure S1. Installing Plugin from ZIP utility of QGIS software.

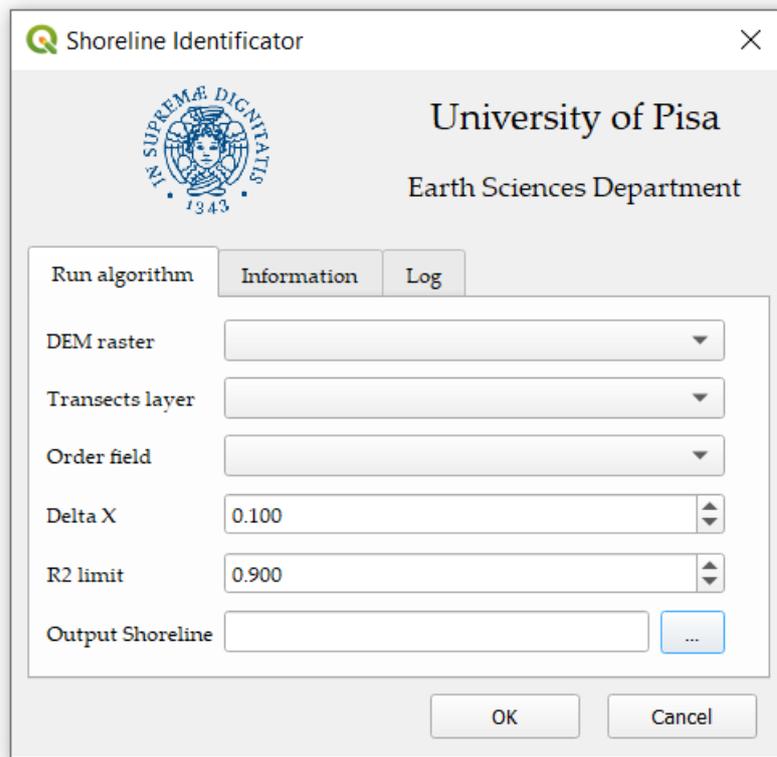


Figure S2. Shoreline Identification Plugin interface.