



# Interreg

## Latvija-Lietuva

European Regional Development Fund



**Joint management of Latvian – Lithuanian trans-boundary river and lake water bodies (TRANSWAT) LLI-533**



## Watershed model for the Lake Garais/Ilgė



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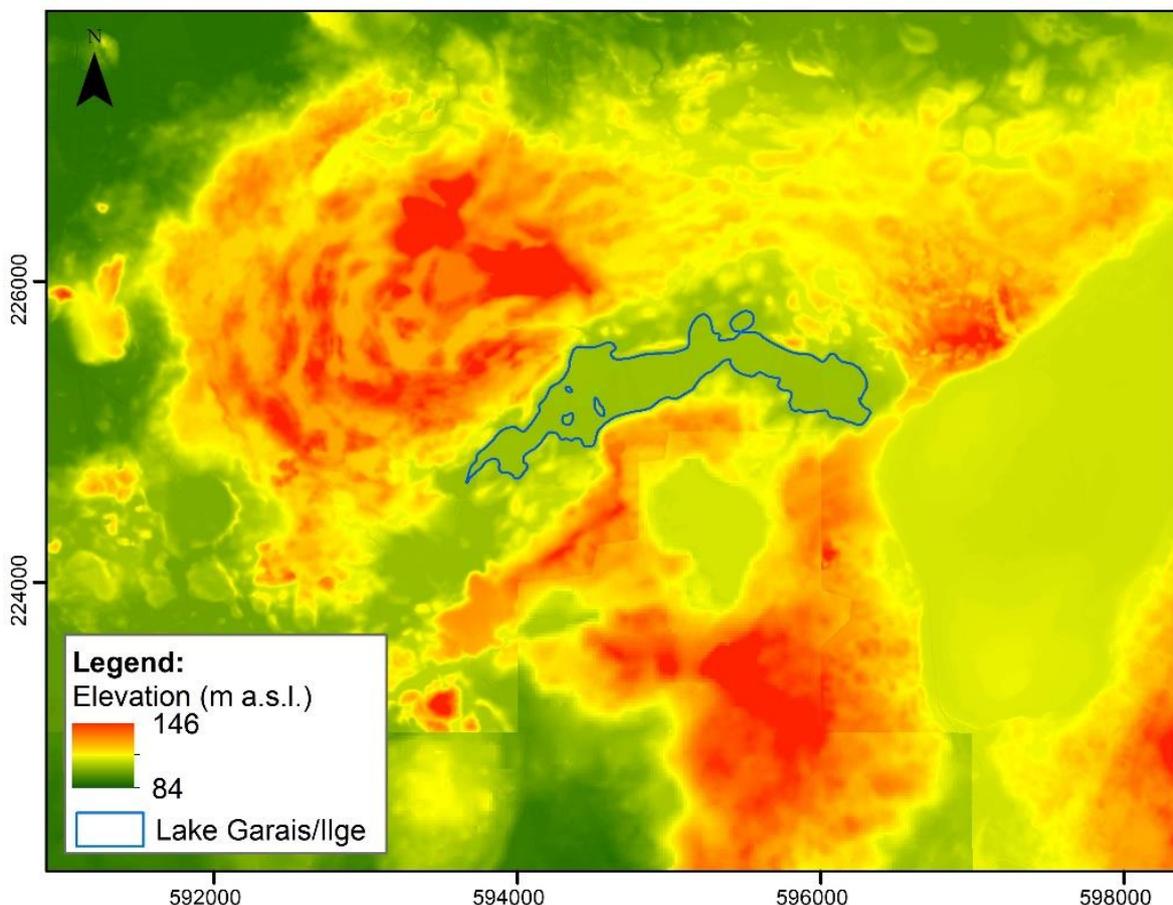
## Catchment area delineation of Lake Garais/Ilge

Delineation of the catchment area boundaries of Lake Garais/Ilge is based on available information about the terrain of the transboundary area (using Eastern European DEM) and specifics of local anthropogenic changes, such as land amelioration, ditches, etc., which form local boundaries. Additionally, orthophoto maps were used to analyze the area. The data was collected from the following sources:

1. Digital elevation model (DEM, with 2 m resolution), 2019. Latvian Geospatial Information Agency (LGIA);
2. Latvian Land Amelioration Cadastre, 2021. Available at: <https://www.melioracija.lv/> ;
3. LGIA Orthophoto data, 2021. Available: <https://kartes.lgia.gov.lv/>.

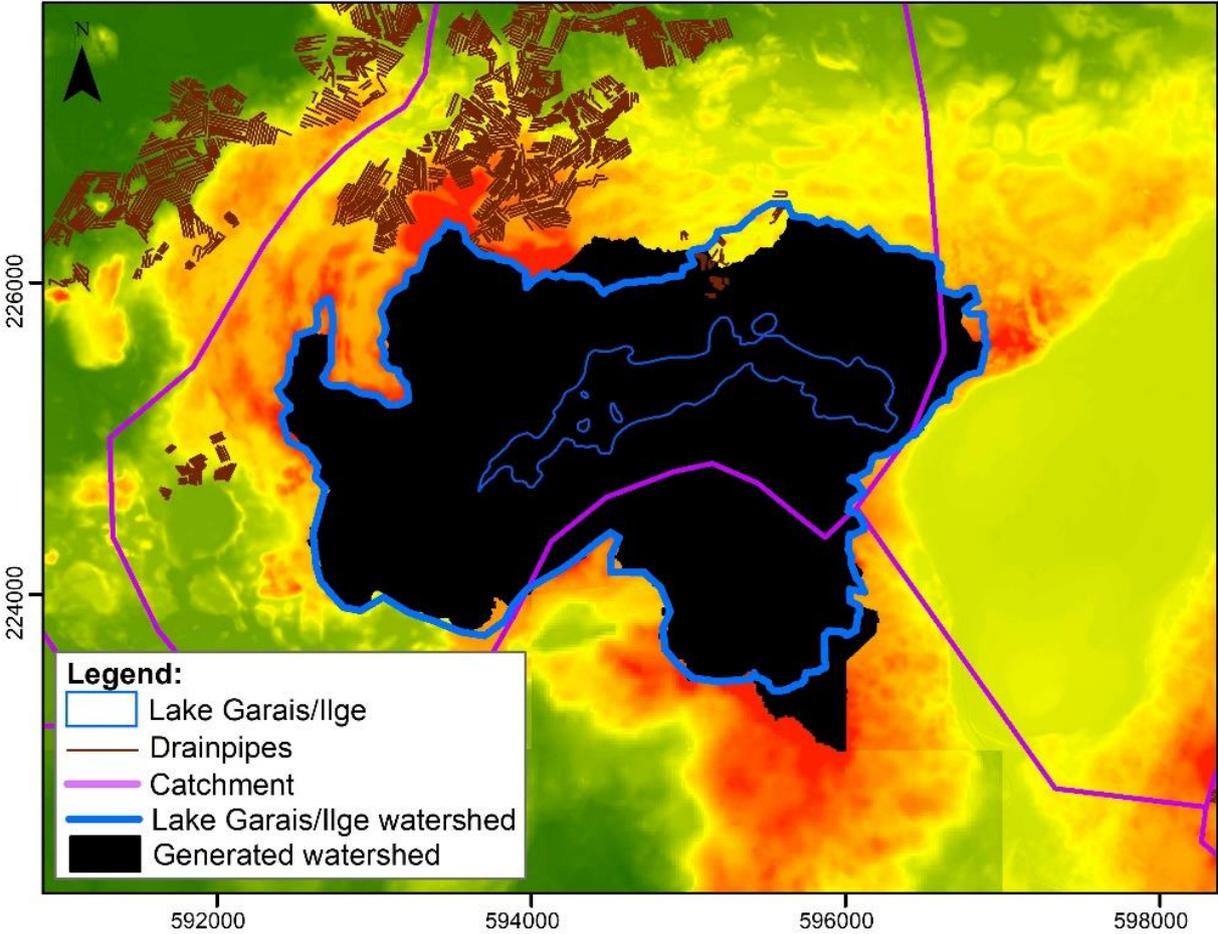
The boundaries of the catchment area are determined in a two-step procedure: 1) automatic generation of the catchment boundary using GIS tools; 2) correction of the created boundary based on specific local conditions (ditches, amelioration, pounds) and terrain data in some areas, where data for automatic boundary generation was not available.

Initially, the catchment boundary is automatically generated (Figure 1), using digital elevation model data on GIS software - *ArcView 10.8*, program tool - *Spatial Analyst Tools, Hydrology*.



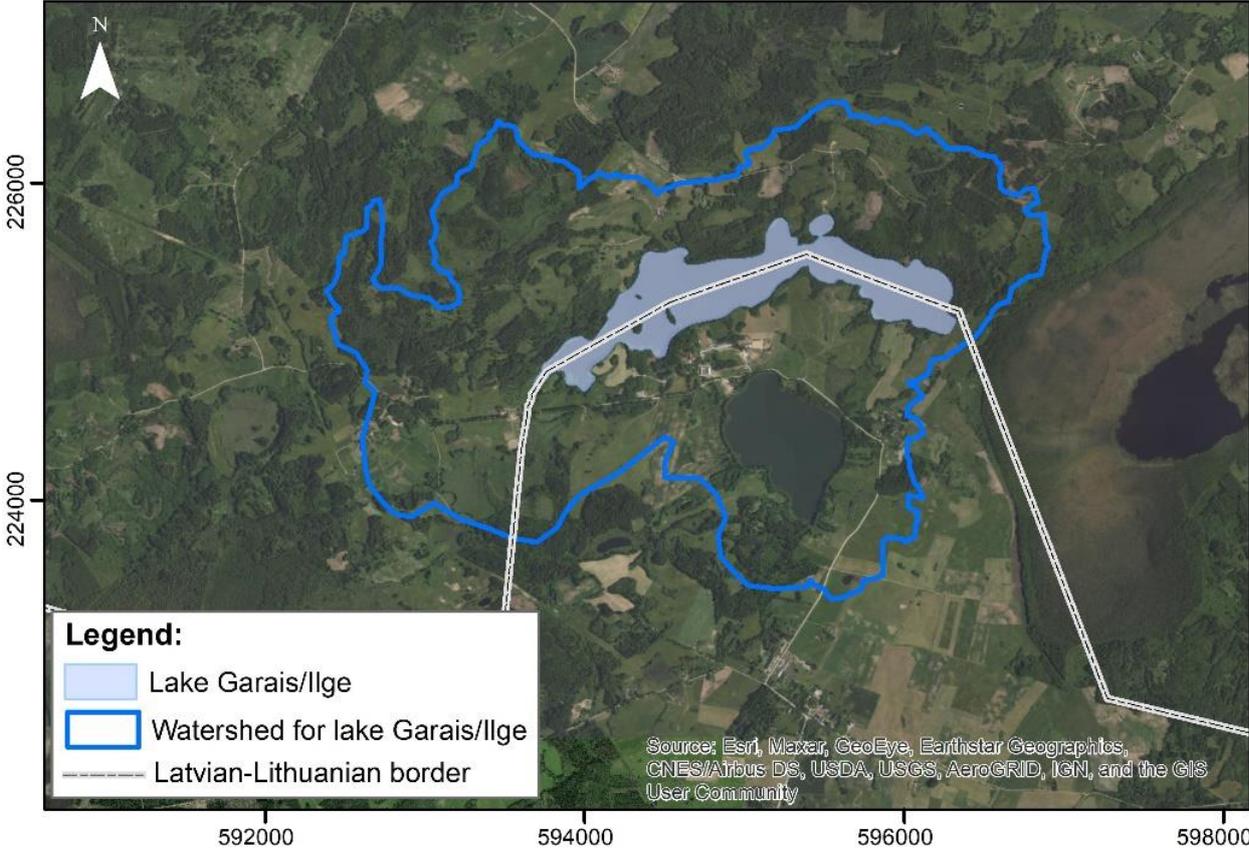
**Figure 1.** Digital elevation model of Garais/Ilge lake surrounding area, the location of the lake shown in blue (LEGMC, 2021).

Then the automatically generated boundary is adjusted manually by adding data about catchments, drainpipes, and ditches from the amelioration cadastral data in the GIS program (Figure 2). The map below shows that the catchment area shapefile (purple line) is inaccurate, it cannot be used for adjustment of the catchment, therefore digital elevation data is used here. It should be noted that on the Lithuanian side, due to the discrepancy in the DEM, the catchment boundary was also adjusted.



**Figure 2.** Automatically generated boundary (shown in black) and a corrected boundary of Garais/Ilge Lake (LEGMC, 2021).

Figure 3 shows the boundary of the catchment area of Lake Garais/Ilge. Total catchment area is approximately 8.72 km<sup>2</sup>, 5.04 km<sup>2</sup> of which is located in Latvia and 3.68 km<sup>2</sup> - in Lithuania.



**Figure 3.** Garais/Ilge Lake catchment area (LEGMC, 2021).