#### LABORATORY OF HYDROLOGY



# HYDROLOGICAL SERVICES

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## At a glance



DESIGN OF NEW RIVER AND SEA PORTS



RECONSTRUCTION OF EXISTING PORTS



ENVIRONMENTAL IMPACT ASSESSMENT OF ANTHROPOGENIC ACTIVITIES ON WATER BODIES



DIGITAL MODELLING OF HYDROLOGICAL AND HYDRODYNAMIC PROCESSES



ASSESSMENT OF CLIMATE CHANGE IMPACT ON WATER BODIES



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### SERVICES FOR PORT INDUSTRY

- design of new river and sea ports;
- reconstruction of existing ports;
- dredging of sea harbours and waterways, ensuring the nautical depth.



#### ENVIRONMENTAL IMPACT ASSESSMENT STUDIES

- Environmental impact assessment of:
  - anthropogenic activities on water bodies;
  - new river and sea ports or ports under construction;
  - energy facilities;
  - ▶ water transport.



#### DIGITAL MODELLING OF WATER BODIES (APPLIED MODELS MIKE 21, HBV, ARCGIS ETC.)

- hydrological and hydrodynamic processes;
- waves;
- sediment transport;
- pollution dispersion.

#### CLIMATE CHANGE

- adaptation of climate change scenarios;
- projections of river runoff in 21st century;
- assessment of wave, hydropower and hydrokinetic resources.

## Experience highlights

- Studies under the agreement with JSC Sweco Lietuva:
  - Assessment of Hydrodynamic Conditions and Sediment Balance Changes (the results of were used in preparation of The Expansion Plan of Maximum Deepening and Widening Possibilities for Klaipėda State Sea Navigation Channel);
  - Creation of technical concept of Klaipėda State Seaport Southern entrance;
  - Reconstruction of Klaipėda state seaport northern and southern piers as well as preparation of design proposals for partial Curonian Spit slope consolidation.
- Under the agreement with JSC Sweco Hydroproject, the study Mathematical Model of the Kiaules Nugara Island Slope Erosion and Sediment Processes was prepared.



- Under the agreement with SE Klaipėda State Seaport Authority, the Klaipėda Port Stream Atlas was prepared.
- Under the agreement with the Nature Research Center, The Assessment of the impact of water level fluctuation on fish and water bird population in Kaunas hydro power plant reservoir was carried out.
- Under the agreement with SC Lietuvos Energijos Gamyba project Update and adjustment of Kaunas hydro power plant reservoir usage and surveillance regulations was carried out.
- Under the agreement with JSC Ekotektonika, the study Hydrodynamic Modelling of the Danes River Flow for Construction of Boat Pier was prepared.

Figure 1: Structure of the Klaipėda strait flow when a discharge set on 2730 m3/s

Figure 2: Flow distribution in the Dane river, flowing with discharge 164 m3/s

Figure 2.

