

Interreg



Co-funded by
the European Union



LATVIJAS VIDES, ĢEOLOĢIJAS
UN METEOROLOĢIJAS CENTRS

Latvia – Lithuania

ICEREG

Latvian 2-d cycle Spring Flood Risk maps (0.5%, 1%, 10%, 2100) for pilot territories. Ice-jam Flood Risk maps for Plavinas HPP

TATJANA KOLCOVA | PROJECT MANAGER
MID-TERM WORKSHOP. 29.04.2025.

FLOOD SOURCES



- Spring flood (snow melt + rain);



- Coastal flood (sea surge floods);

No modeled

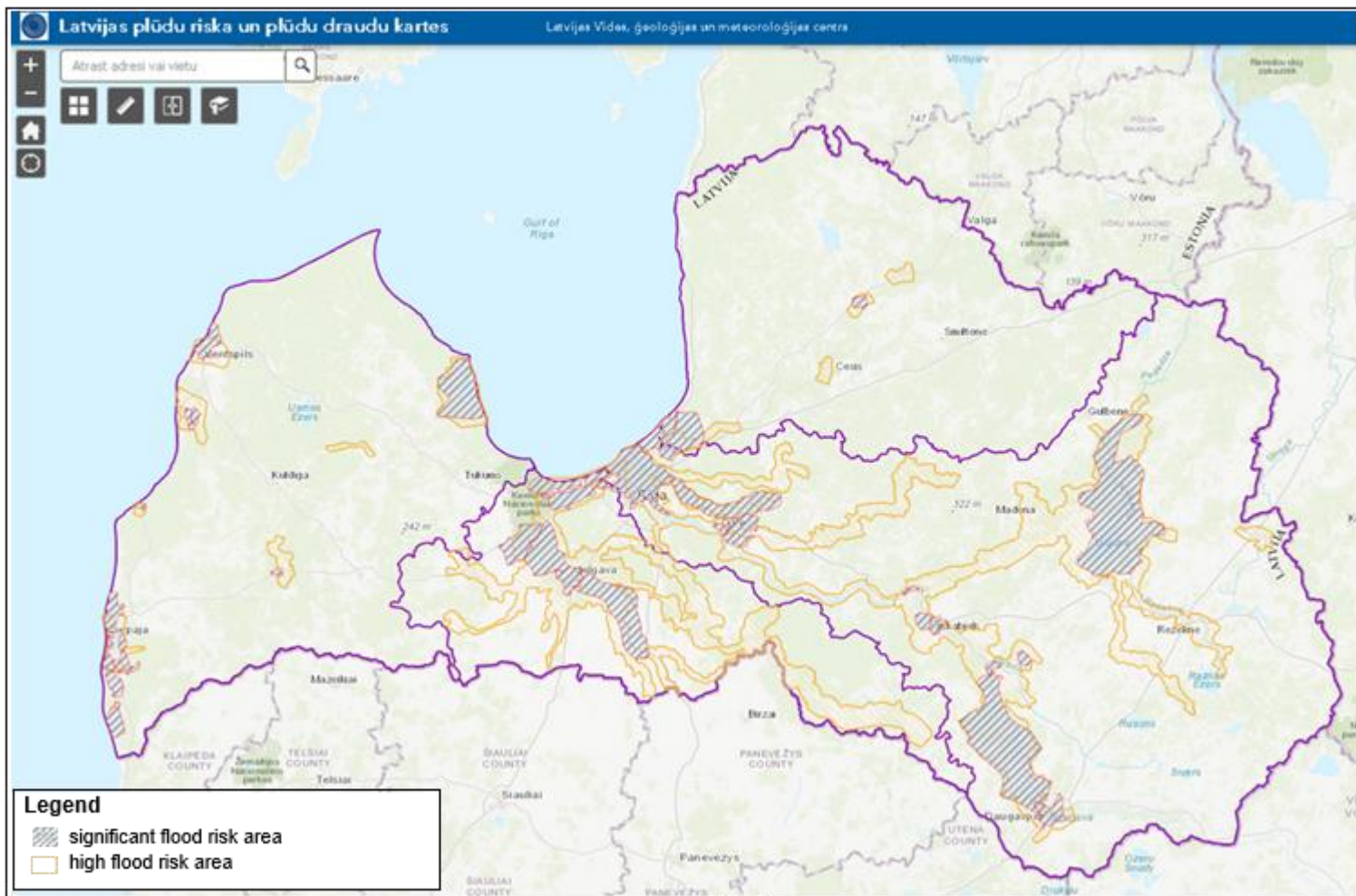
- Ice-jam floods (ICEREG project);
- Fluvial floods;
- Breakdown of hydrotechnical structures



FLOOD RISK MAPS IN LATVIA



Flood risk maps are made for 32 specified areas which are defined under significant risk and other areas with high flood. Risk is remodeled each 6 years



INFORMATION AVAILABE

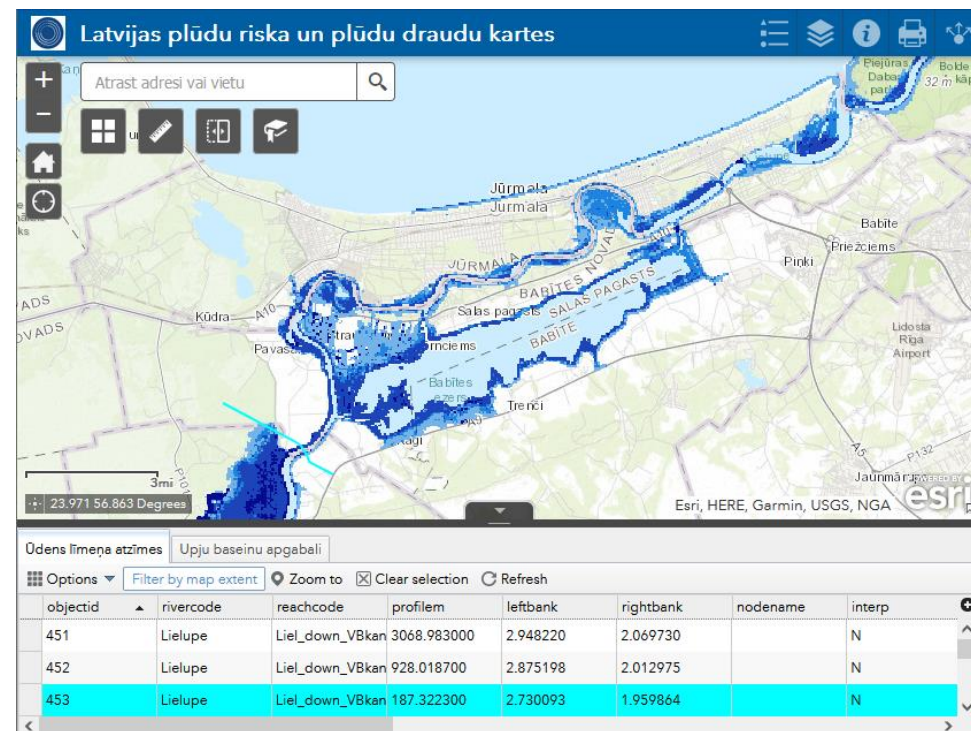


- **spring flood** with repitition probability 1 time in about 2, 5, 10, 20, 50, 100 & 200 years (50%, 20%, 10%, 5%, 2%, 1% & 0.5% probability);
- **sea flood** with repitition probability 1 time in about 2, 5, 10, 20, 50, 100 & 200 years (50%, 20%, 10%, 5%, 2%, 1% & 0.5% probability);
- **spring flood for Daugava HPP cascade** with repitition probability 1 time in about 10, 100 & 200 years (10%, 1% & 0.5% probability);
- **Ice jam flood for Pļaviņu HPP** with repitition probability 1 time in about 10, 100 & 200 years (10%, 1% & 0.5% probability).
- maps with flood risks for the **year 2100** under the scenario RCP 4.5, which characterizes moderate climate change.

MAPS FORMATS AND RESOLUTION

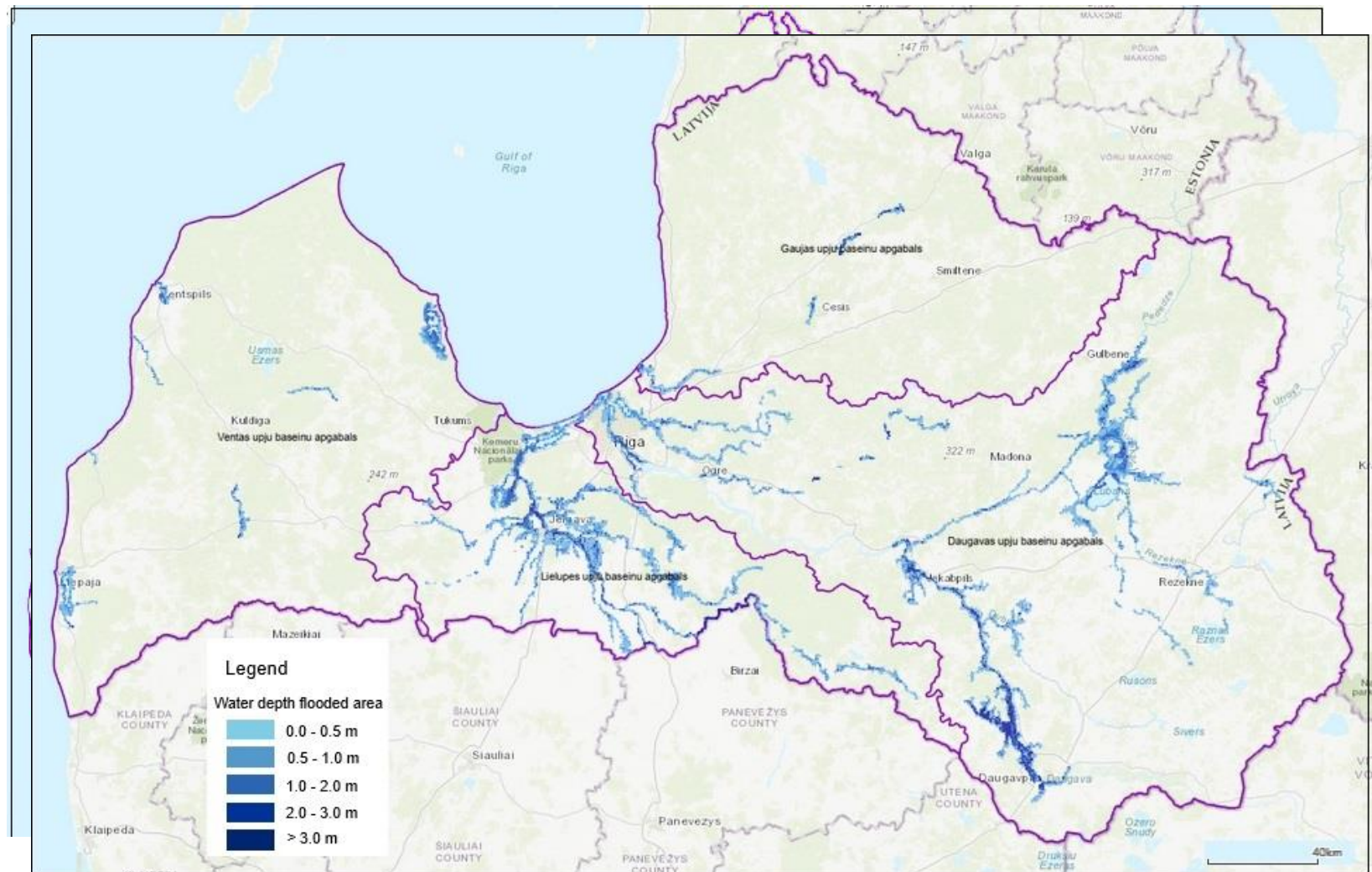


1. Maps are available in vector (ESRI .shp, gdb) or raster (.tiff) format, as WMS, WFS services (with or without depth information);
2. Flooding depth in meters;
3. Resolution 2x2 m based on DEM resolution made of LIDAR data .
4. Data viewing options:
 - 4.1. GIS systems (ArcMap; ArcGIS PRO, QGIS, etc.) – .shp, .gdb, .dgn, .dwg.
 - 4.2. Online: PRIS (Flood Risk Information System).
5. Vector or raster maps require experience with GIS systems and access to appropriate software.

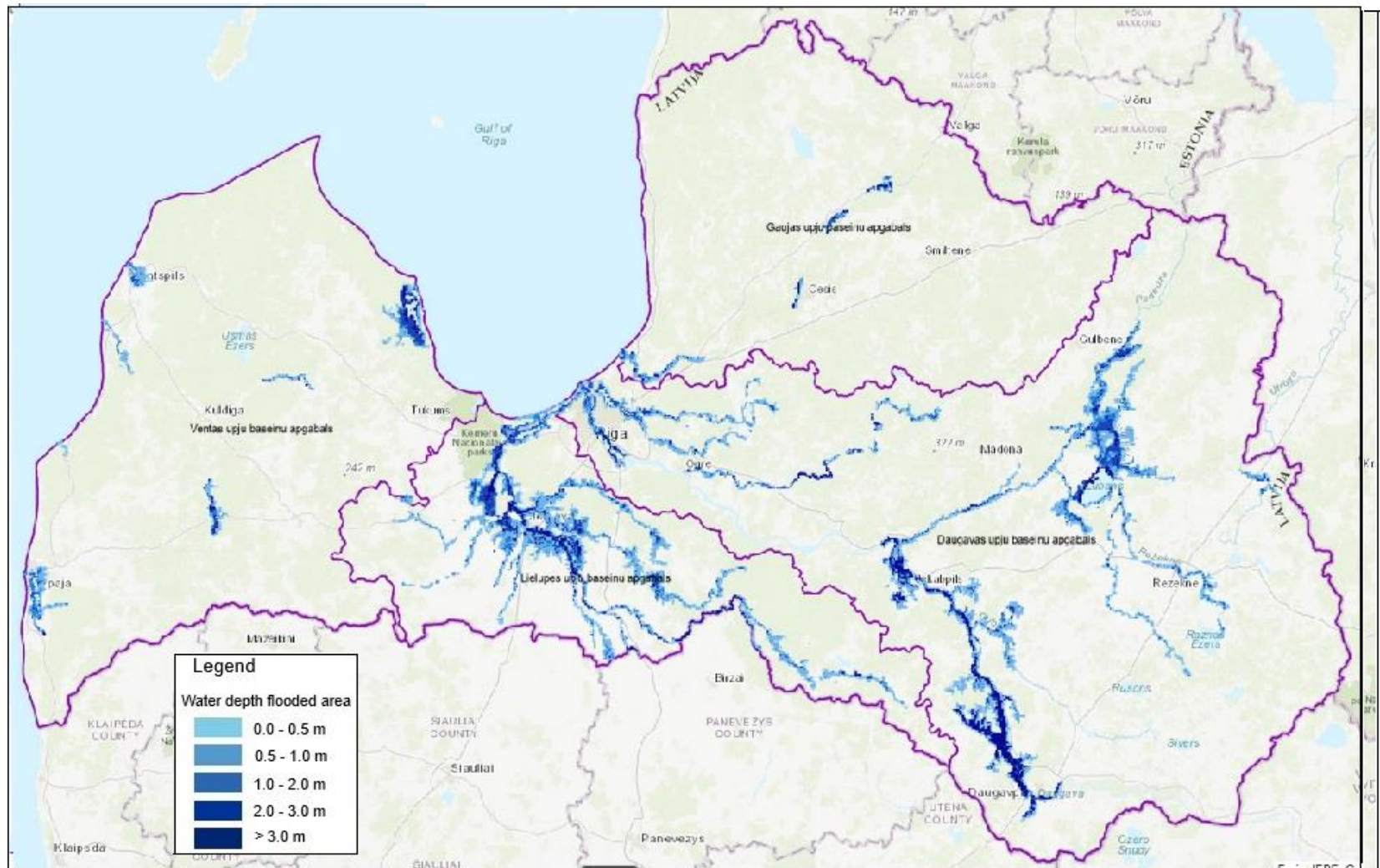


1% probability spring flood map with water level data table

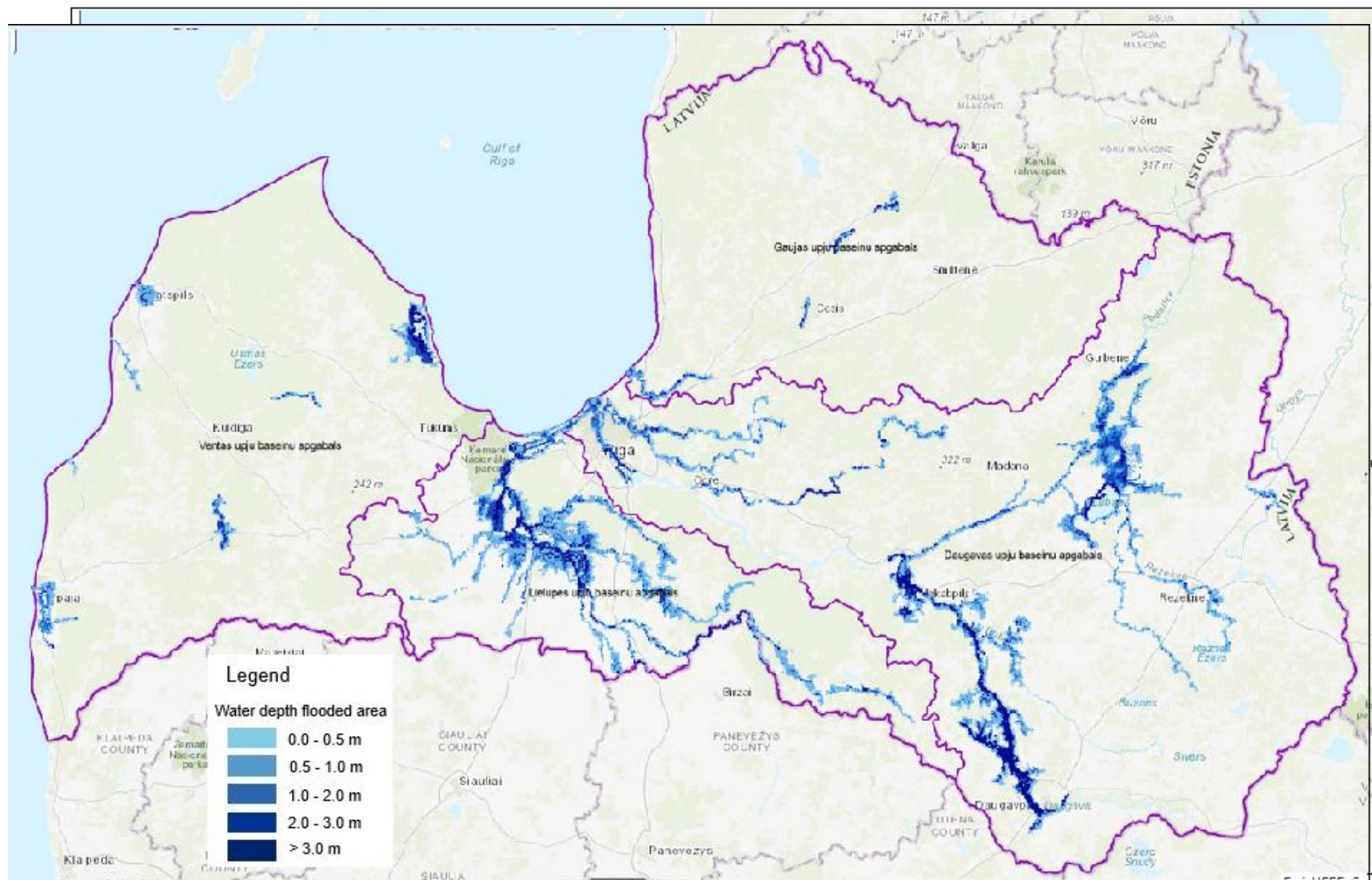
FLOOD RISK MAPS (10% PROBABILITY)



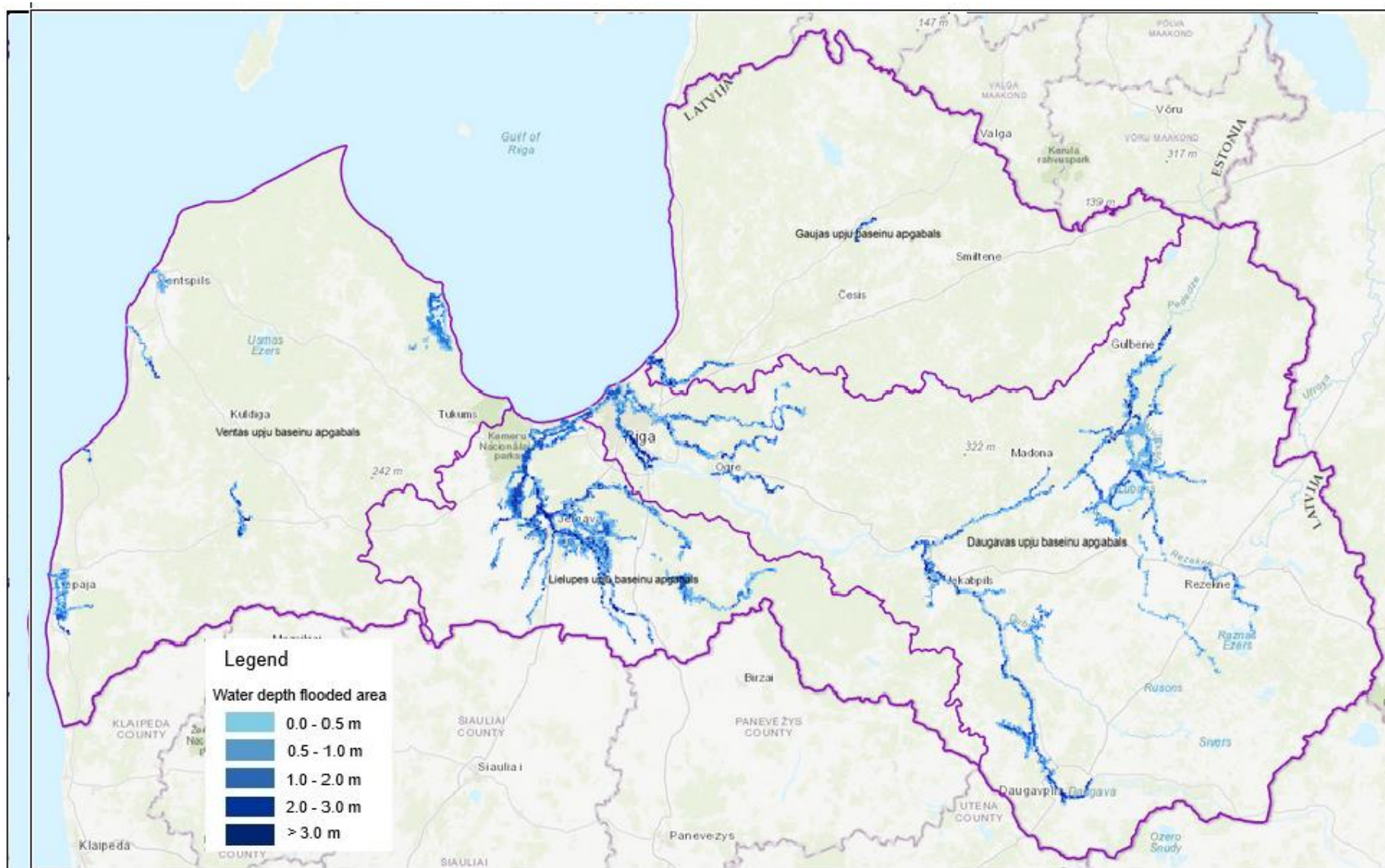
FLOOD RISK MAPS (1% PROBABILITY)



FLOOD RISK MAPS (0.5% PROBABILITY)



FLOOD RISK MAPS (YEAR 2100, RCP 4,5)



FLOOD RISK MAPS ANALYSIS (FLOOD PRON AREA)



Flood scenario	1-st cycle FRMP 2016-2021		2-nd cycle FRMP 2022-2027	
	Spring flood	Sea coast flood	Spring flood	Sea coast flood
DAUGAVA RBD				
10%	524	-	347	11.0
1%	870	-	473	23.0
0.5%	980	-	513	28.0
GAUJA RBD				
10%	15.81	10.39	6.31	3.62
1%	19.27	13.77	13.96	6.25
0.5%	19.94	14.87	16.25	8.07
LIELUPE RBD				
10%	197.42	43.53	134.41	10.88
1%	254.86	60.06	223.34	20.98
0.5%	271.16	64.71	243.94	22.55
VENTA RBD				
10%	142.02	70.54	44.74	55.44
1%	182.47	103.56	64.03	77.77
0.5%	199.93	118.35	70.54	83.0

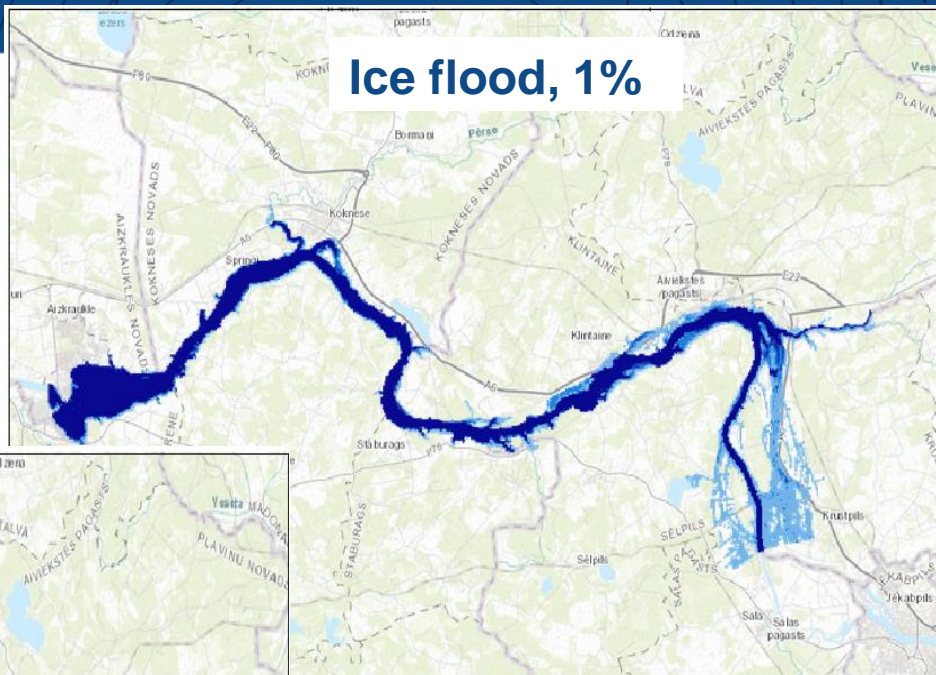
The difference in flooded area between 1-st and 2-d cycles relates both to the measures implemented to reduce the risk of flooding and to the impact of climate change on the water level regime.

In addition, topographic information was clarified and a new DEM was created, as well as APSFR status was granted to four more areas in Daugava RBD, one area in each others of Latvian RBDs.

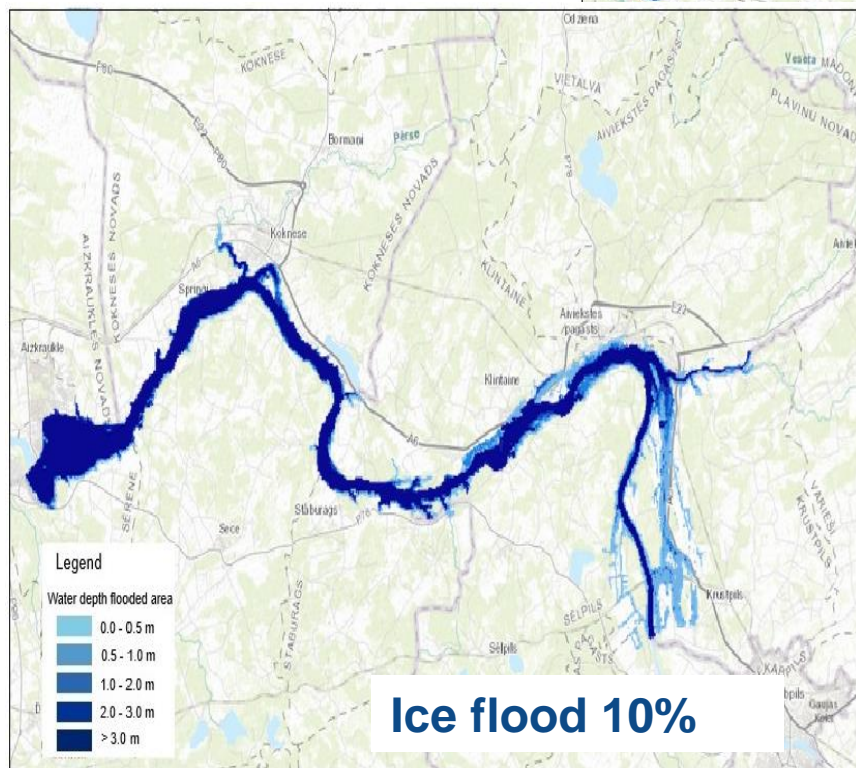
ICE FLOOD RISK MAPS, PLAVINAS HPP



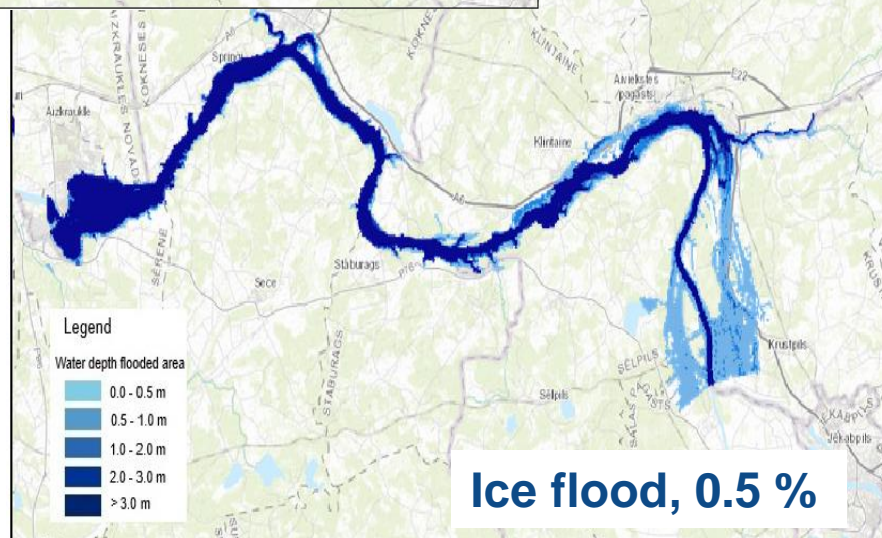
Ice flood, 1%



Ice flood 10%



Ice flood, 0.5 %





THANKS FOR YOUR ATTENTION!



CONTACT ME:

tatjana.kolcova@lvgmc.lv