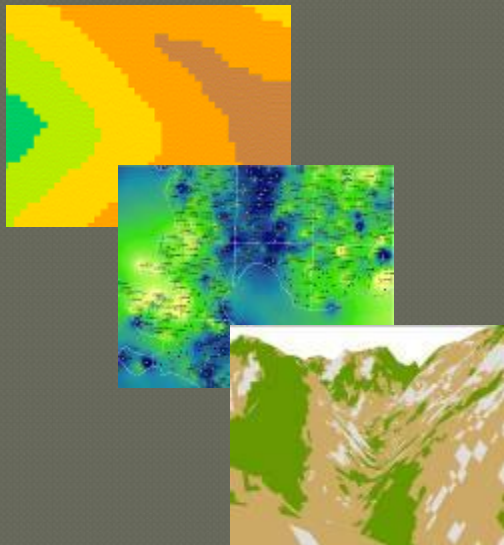
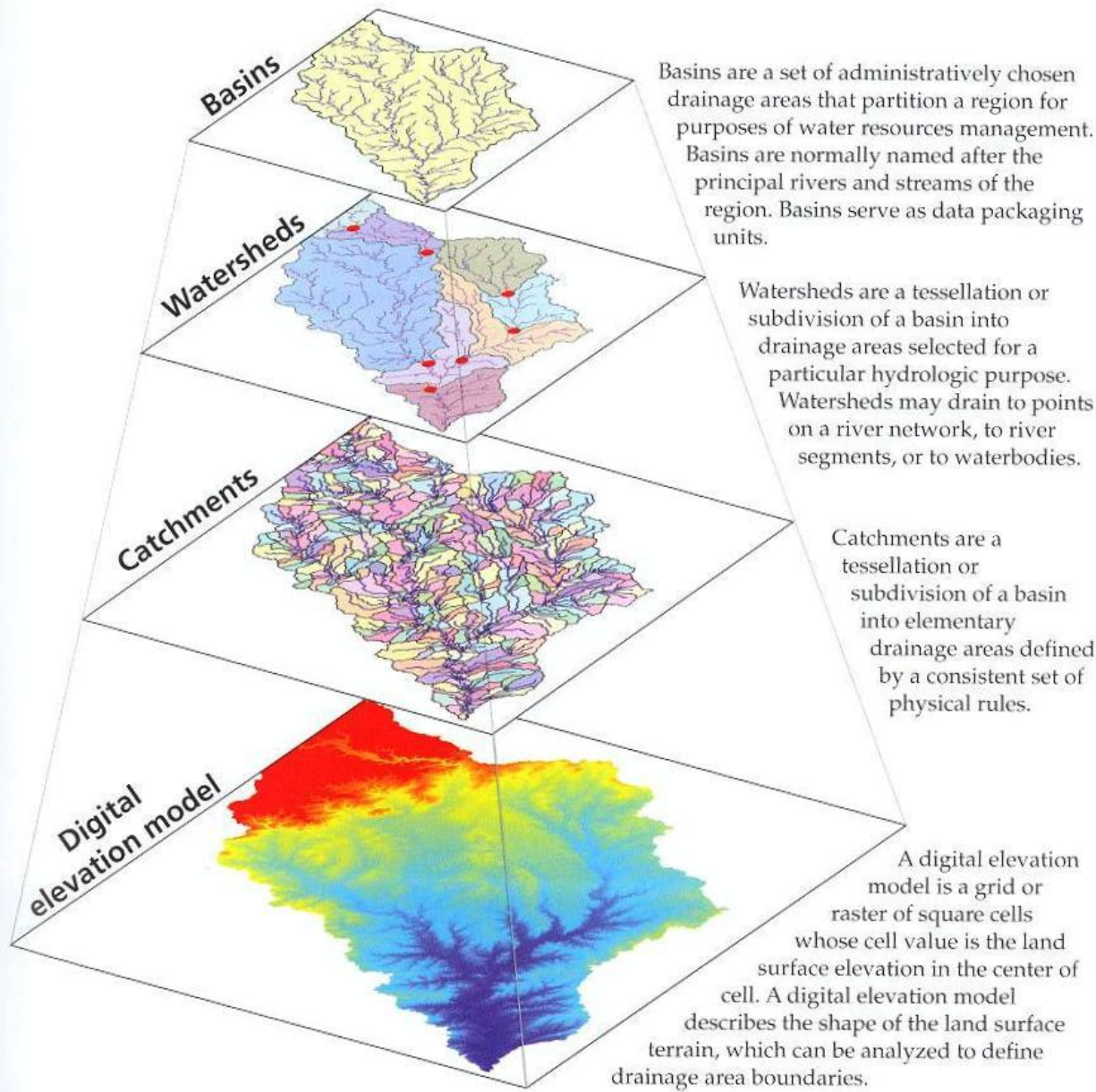


GIS and Hydrology



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Department of Environmental
Engineering and Water Management
Latvia University of Agriculture



Four spatial scales for representation of a basin: digital elevation model, catchment, watershed, and basin

e area

Watershed delineation – Option 1

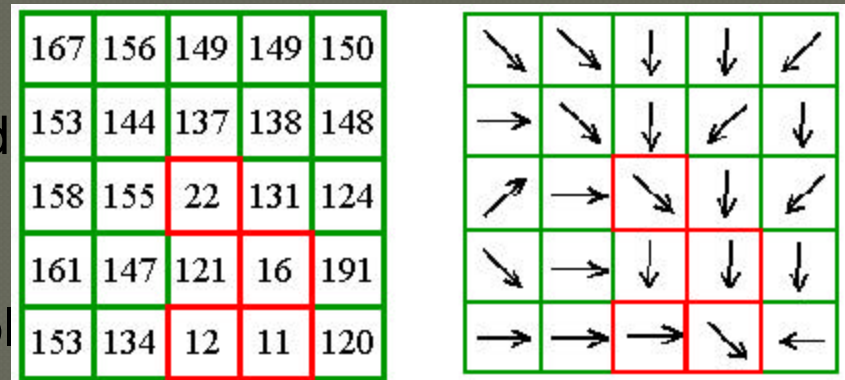
Watershed delineation using DEM in ArcToolbox/Spatial Analyst Tools/Hydrology and ArcHydro tool **if NO OTHER DATA AVAILABLE**

- Fill sinks of the digital elevation model
- Calculate flow direction
- Calculate flow accumulation
- Stream definition (ArcHydro tool)
- Stream sedimentation (ArcHydro tool)
- Catchment grid delineation (ArcHydro tool)
- Catchment polygon processing (ArcHydro tool)
- Drainage line processing (ArcHydro tool)
- Convert raster stream network to feature (vector stream network) (ArcHydro tool)

Watershed delineation – Option 2

Watershed delineation using DEM in ArcToolbox/Spatial Analyst Tools/Hydrology and ArcHydro tool **if ALL DATA AVAILABLE**

- Fill sinks of the digital elevation
- Burn in streams – DEM Recond
- Calculate flow direction
- Calculate flow accumulation
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- Stream sedimentation (ArcHydro tool)
- Catchment grid delineation (ArcHydro tool)
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Watershed delineation – Option 3

Watershed delineation using DEM in ArcToolbox/Spatial Analyst Tools/Hydrology **if hydrologic network and pour points AVAILABLE**

- Fill sinks of the digital elevation model
- Calculate flow direction
- Calculate flow accumulation
- Snap pour points
- Calculate watersheds based on flow direction and pour points
- Convert the watershed from raster to polygon shapefile

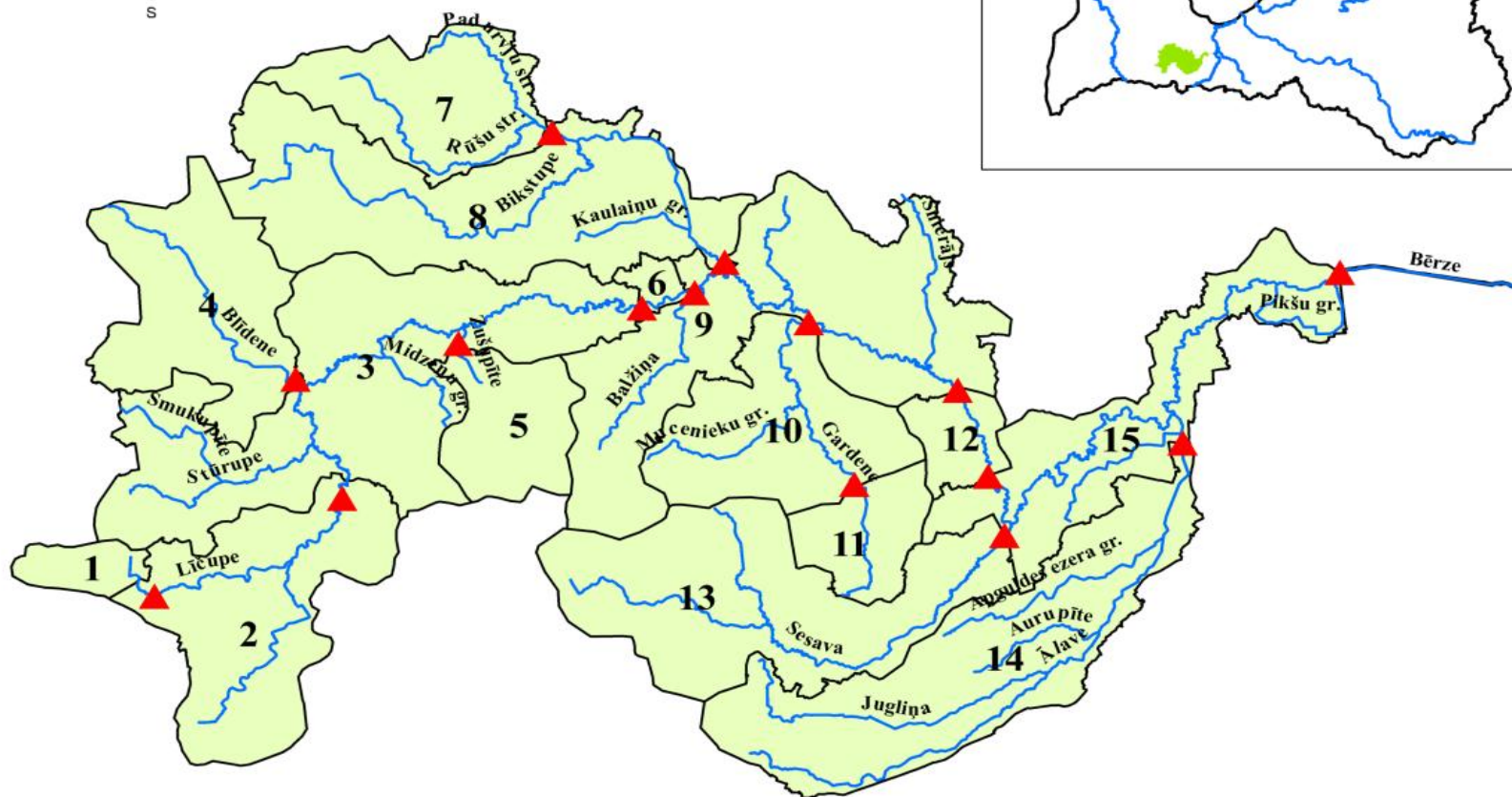
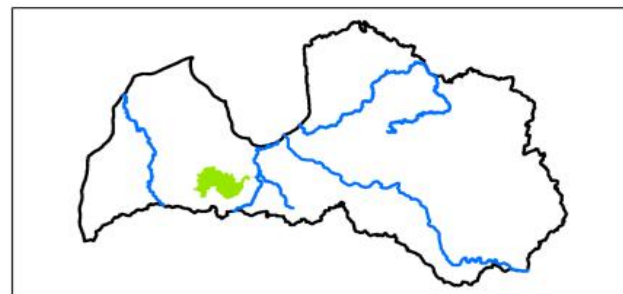


Watershed delineation – Option 3




Watershed delineation using DEM in ArcToolbox/Spatial Analyst Tools/Hydrology **if hydrologic network and pour points AVAILABLE**

- Fill sinks of the digital elevation model
- Calculate flow direction
- Calculate flow accumulation
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- Convert the watershed from raster to polygon shapefile

Berze River basin (872.05 km²)



Apzīmējumi

-  Virszemes ūdeņu paraugu ņemšanas vieta
-  Hidrogrāfiskais tīkls
-  Daļbaseins



Mean concentrations of N and P (mg l⁻¹) in waters of the Bērze River basin (2005 – 2010)

