

**Table 4.1 Spatial Units within the Framework: Definitions, Delineation Criteria and Potential Data Sources and Methods**

<b>Spatial Unit (equivalent terms)</b>	<b>Definition / Description</b>	<b>Delineation criteria (#)</b>	<b>Methods and Data Sources (#)</b>
<i>Region (Ecoregion, Biogeographical region)</i>	Relatively large area that contains characteristic assemblages of natural communities and species that are the product of broad influences of climate, relief, tectonic processes, etc.	Differences in main climatic variables and distribution of main vegetation types as shown in maps delineated at European scale (see sources column)	<a href="http://www.globalbioclimatics.org">www.globalbioclimatics.org</a> , using Biogeographic Region and Sub-Region
<i>Catchment (Drainage basin, Watershed)</i>	Area of land drained by a river and its tributaries.	Topographic divide (watershed)	Digital Elevation Models (e.g. SRTM, ASTER GDEM, EU-DEM) using GIS algorithms to delimit the divide EU-wide CCM2 River and Catchment Database (v2.1) or EEA Ecrins (connected watersheds, rivers, lakes, monitoring stations, dams) data set
<i>Landscape Unit (Physiographic Unit)</i>	Portion of a catchment with similar landscape morphological characteristics (topography/landform assemblage).	Topographic form (elevation, relief – dissection, often reflecting rock type(s) and showing characteristic land cover assemblages)	GIS overlay of some of the following in the stated order of priority (1) Digital Elevation Model (e.g. SRTM, ASTER GDEM) (2) Geological maps (One Geology Europe) (3) CORINE Land Cover (4) Supporting information from: Google Earth / Orthophotos
<i>River segment (River sector)</i>	Section of river subject to similar valley-scale influences and energy conditions.	Major changes of valley gradient Major tributary confluences (significantly increasing upstream catchment area, river discharge) Valley confinement (confined, partly-confined, unconfined) In mountainous areas, very large lateral sediment inputs	(1) Major segments are identified by applying GIS tools to a DEM with river network overlay, to define downstream breaks in valley gradient (and width) and in upstream contributing area. (2) Major segments may be subdivided according to valley confinement interpreted from DEMs Google Earth images Orthophotos
<i>River reach</i>	Section of river along which boundary conditions are sufficiently uniform that the river maintains a near consistent internal set of process-form interactions. (A river segment can contain one to several reaches)	Channel morphology (particularly planform) Floodplain features (minor changes in bed slope, sediment calibre, may be relevant) Artificial discontinuities that affect longitudinal continuity. (e.g. dams, major weirs / check dams that disrupt water and sediment transfer)	Segments are subdivided into reaches by visual interpretation of consistent river and floodplain (bio) geomorphic pattern using Google Earth Orthophotos Multi-spectral remotely-sensed data Lidar data (Field reconnaissance can provide useful confirmation / additional data)
<i>Geomorphic unit (Morphological unit, Mesohabitat, Sub-reach)</i>	Area containing a landform created by erosion and/or deposition inside (instream geomorphic unit) or outside (floodplain geomorphic unit) the river channel. Geomorphic units can be sedimentary units located within the channel (bed and mid-channel features), along the channel edges (marginal and bank features) or on the floodplain, and include secondary aquatic habitats within the floodplain. Some geomorphic features (biogeomorphic units) are formed in association with living and dead (e.g. large wood) vegetation as well as sediment.	Major morphological units of the channel or floodplain distinguished by distinct form, sediment structure / calibre, water depth/velocity structure and sometimes large wood or plant stands (e.g. aquatic / riparian, age class)	Requires field survey but preliminary analysis can use: Google Earth Orthophotos Multi-spectral remotely-sensed data Lidar data
<i>Hydraulic unit</i>	Spatially distinct patches of relatively homogeneous surface flow and substrate character. A single geomorphic unit can include from one to several hydraulic units.	Patches with a consistent flow depth / velocity / bed shear stress for any given flow stage and characterized by narrow range in sediment calibre	Requires field survey
<i>River element</i>	Elements of river environments including individuals and patches of sediment, plants, wood, etc.	Significant isolated elements creating specific habitat or ecological environments	Requires field survey

(#) All spatial scales equal to or greater than the reach scale may be delineated using secondary sources and a desk-based analysis – types of data are suggested here.