



GHC – Surface Water

Surface Water Register and Management Application

Usually local authorities and the municipal administration are in charge of second- or higher-order stream sections. The sound management of these rivers requires the consideration of a multitude of aspect from drainage to environmental protection, flood control and landscape conservation. Measures for river management are often caught in the conflict between general legal and financial constraints and a large number of interests and claims. The scope and consequences of environmental measures require planning with consistent incorporation of these claims.

■ The Product

The Smallworld GIS application river management offers an independent documentation, planning and information solution for river maintenance, development and management on the basis of an integrated hydrographic register.

The development in close cooperation with the city of Baden-Baden lead to a cost-efficient operational tool for the growing information and evaluation demand.

The description of the rivers in the hydrographic register is based on longitudinal and transverse profiles, water lines and attribute areas (sedimentation areas, flooding areas, et cetera). In addition, river relevant constructions (bridges, retaining walls, flood control basins, et cetera) and measuring stations, including their time series, are presented. The level of detail of attached images allows the direct derivation of hydraulic descriptions.

Characteristics related to various topics are managed along the watercourse. Predefined topics include, among others, responsibility and ownership matters as well as hydraulic parameters, quality parameters, topics related to nature conservation, flood risks and development goals. All topics can be adjusted and supplemented to specific needs.



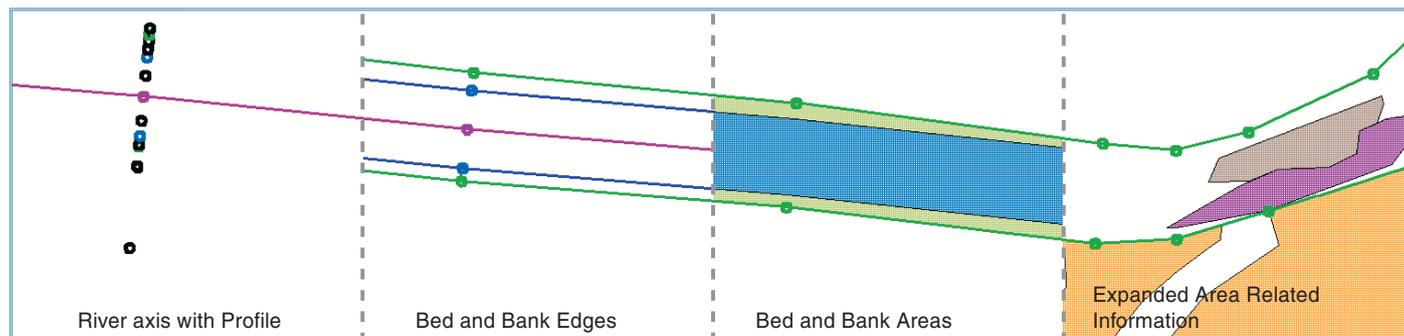
All activities along the river are described on the basis of a generic concept which is divided into different areas:

River management

- Maintenance of structures and measuring stations
- River development
- Flood prevention

These are further differentiated as per type and nature of task. The consistent use of attribute catalog objects allows the easy adjustment to specific customer needs.

Presentation Modes of the River Configuration in the GIS





■ Functionality

Advanced presentation and visualization capabilities together with special data input and task-specific evaluation and querying enable the efficient support of planning, logging and management.

- **Content Filter** for flexible access and visibility control
- **Plan Manager** for the configuration and direct access to thematic maps
- Presentation of characteristics and measures with **multiple watercourse-parallel, colored bands** with variable bandwidths
- **Longitudinal and Transverse Profile Manager**
- **Stationing Tool** with the support of any stationing system
- **Diagram Tool** for the evaluation and presentation of time series
- **Task Manager** for the support of work procedures
- **List Querying** as an expansion of SW object querying
- **Configurable Labeling**
- **Image Manager** for the selection and presentation of images
- **Import and Export Manager**

The river itself as well as its defined properties and measures are subject to changes. The application supports this aspect via an integrated history management which ensures continuous documentation of conditions.

■ Extensions

- **Interface WPROF** (exchange format of state authorities)
- Coupling with hydraulic programmes

■ References

- The city of Baden-Baden
- Niederrheinische Versorgung und Verkehr AG (NVV)
- Stadtentwässerung Düsseldorf

The screenshot displays the HydroS software interface with several key components:

- Fläche (Area) Dialog:** Shows parameters for defining an area, including 'Gemeinnee' (Riverbank), 'Abschnitt' (Section), and 'Flächen-Typ' (Area Type). It also includes stationing information like 'Stationierungssystem' and 'Stationierung von/bis'.
- Bänderdarstellung (Band Representation) Dialog:** Allows for selecting visualization projects and defining parameters like 'Band-Breite' (Band Width) and 'Abstand zwischen Bänder' (Distance between bands).
- GHC Flexible Beschriftung (Flexible Labeling) Dialog:** Provides options for labeling objects, including 'Bezeichnung' (Label), 'Flächengröße' (Area size), and 'Flächentyp' (Area type).
- Erzeuge & Ändere Profil-Stützpunkte (Create & Change Profile Support Points) Dialog:** Used for defining profile support points, including 'Stützpunkt-Nummer' (Support point number), 'Stützpunkt' (Support point), and 'Positionbestimmung' (Position determination).
- Diagramm-Visualisierungsmenu (Diagram Visualization Menu):** Offers options for 'Darzustellende Parameter' (Parameters to be displayed), 'Zeitspanne für Diagramme' (Time span for diagrams), and 'Diagramm-Typ' (Diagram type).
- Main Map:** Shows a river with colored bands representing different watercourse characteristics. A longitudinal profile is overlaid on the river.
- Attribute Table:** Displays a table with columns for 'Feldname' (Field name) and 'Wert' (Value), listing various attributes like 'Gemeinnee Abschnitt' and 'Maßnahme Hg'.

