



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.



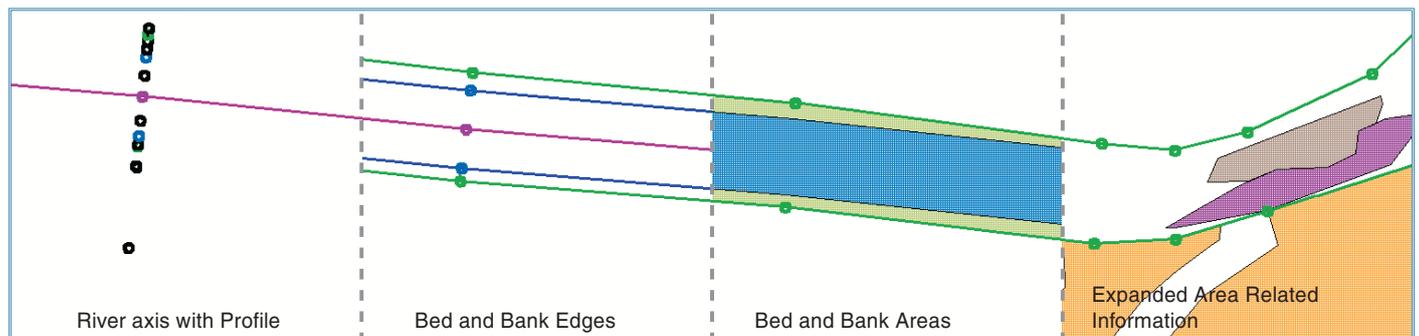
All activities along the river are described on the basis of a generic concept which is divided into different areas:

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 CONSULT software interface with several key components:

- Fläche (Area) Dialog:** Shows parameters for defining an area, including 'Geminne' (Dorsbach), 'Abschnitt' (3-11), 'Flächen-Typ' (Böschungfläche links), and stationing from 8.389 km to 8.443 km.
- Bänderdarstellung (Bands) Dialog:** Lists visualization projects like 'Gewässerstrukturgüte' and provides options to create or edit bands.
- GHC Flexible Beschriftung (Labeling) Dialog:** Allows for flexible labeling of objects, showing a list of attributes like 'Bezeichnung', 'Flächengröße', and 'Flächentyp'.
- Erzeuge & Ändere Profil-Stützpunkte (Profile Support Points) Dialog:** Used for creating or modifying profile support points, showing stationing (12.680 m) and elevation (165.767 m).
- Diagramm-Visualisierungsmenu (Diagram Visualization Menu):** Configures the diagram's appearance, including 'Darzustellende Parameter' (Abfl. Modell, Abfl. Pegel), 'Zeitspanne für Diagramme' (01.01.2006 to 31.12.2006), and 'Diagramm-Typ' (Linien-Diagramm).
- Main Map:** Shows a river reach with colored bands representing different watercourse characteristics and stationing markers.
- Background Data Table:** Lists fields and values for the current project, such as 'Geminne Abschnitt' (Oos, 3-11/B-B) and 'Stationierung' (8.389 - 8.443 km).

