



3 major stages in hydrographic survey :

1. Survey
2. Data processing
3. Data management (HIS)



HIS tasks :

1. Survey areas management
2. Raw survey data storage and access
3. Seamless database for hydrographic information.
4. Data queries for viewing and downloading.
5. Data backups.
6. WMS services.

HIS is accessible over web in both restricted and public versions.

<http://195.80.112.238:8080/HIS/Avalik?REQUEST=Main>



HIS users

1. **Hydrographic department** : survey areas management, data upload/download, queries etc.
2. **Cartographic department** : data extraction as „fairsheets“ in DAF format for charts production.
3. **Waterways department** : data extraction in XYZ or DXF format for waterways planning.
4. **Other EMA departments** : viewing and quering of hydrographic data.
5. **Outside EMA** : viewing and quering of hydrographic data, using WMS services. Input to INSPIRE (no downloads yet).



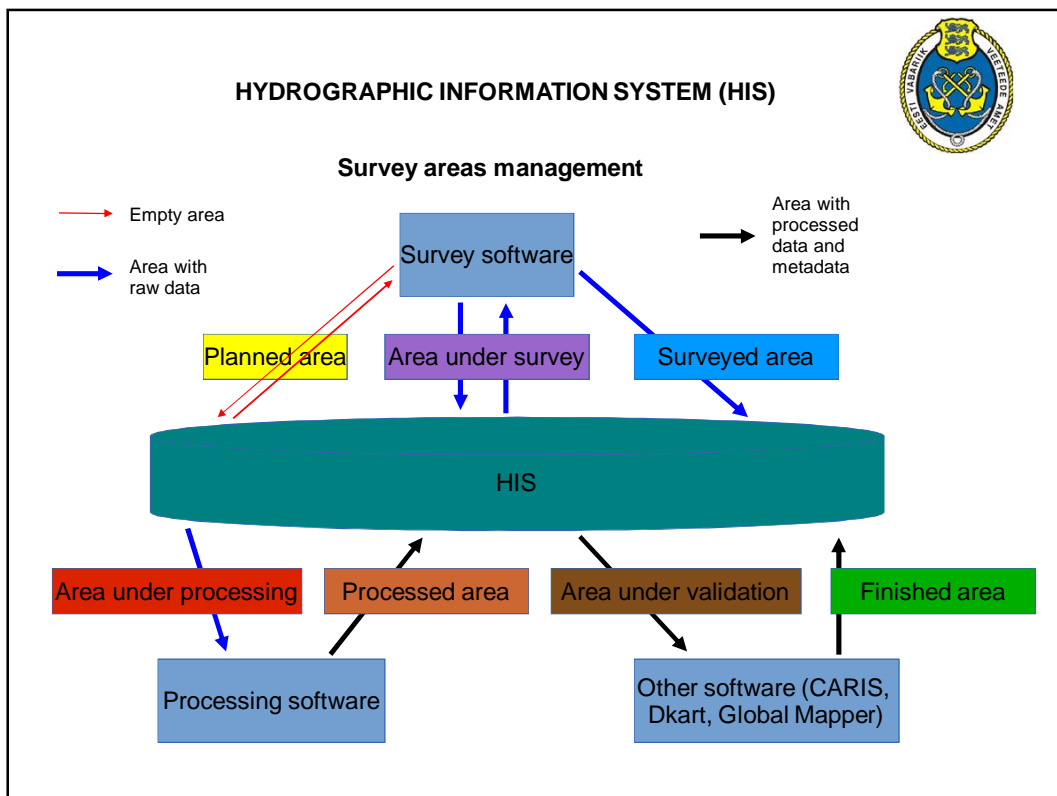
Survey areas management : Prerequisites :

All Estonian waters (including major inland water bodies) are divided into survey areas.

The areas have different statuses (7) according to their survey/processing state. (**planned, under survey, surveyed, under processing, processed, under validation, finished**).

Survey area means folder with data from survey lines + some additional data files.

Both survey and data processing software have support for survey areas management (creating, viewing as map, accessing, archiving etc.).



HYDROGRAPHIC INFORMATION SYSTEM (HIS)

Database :

2 databases – main and sea

main

1. Information about survey areas (borders, metadata)
2. Underwater objects (rocks, wrecks, obstructions)
3. Depths in 1m resolution (one table per area)
4. Information about survey companies, ships, equipment
5. AtoN, harbours (based on links to other databases)

Survey data from private companies are included in HIS as well

HYDROGRAPHIC INFORMATION SYSTEM (HIS)



Database :

sea

Used for providing seamless depth data (depth points at up to 5m resolution and contours at 1m interval) .

These data can be seen over web, used for WMS service and for download over very large areas.

Data are stored in different scales (11 scales from 1:500 to 1:100000).

No direct relation to survey areas, data are related to 10x10 km cells.

Cells cover all Estonia and match exactly with Estonian base topographic chart layout (1:20000).

Cells (depths and contours inside) are automatically updated nightly according to addition/update of survey areas covering the cell.

For overlapping survey areas the cell update process takes into account their survey time and quality. Higher quality or newer data have priority.

HYDROGRAPHIC INFORMATION SYSTEM (HIS)



Queries :

No predefined queries - all are created by query constructors.

Data objects : survey areas, rocks, wrecks, obstructions, AtoN, harbours.

Queries can be defined textually, spatially or combined.

Spatial query can be defined as drawing a box or polygon or loading coordinates from text file.

Outputs can be to screen, to text file or some special format (like dxf or shape).

HYDROGRAPHIC INFORMATION SYSTEM (HIS)



Fairsheet generation :

Special spatial query type intended for extraction of depths and other hydrographic data as „fairsheets“.

Area can be defined the same way as for any spatial query.

Process finds survey areas inside defined area, depths and objects related to those survey areas taking into account their overlapping, survey time and quality.

Then generates contours (if asked) at defineable intervals, suppresses depths according to selected scale, adds objects (and metaobjects if needed) and creates output.

Outputs can be in lat/long (wgs84) or L-Est1997 (EPSG 3301) coordinate system, in XYZ, DXF or DAF format.

Used for creating charts, fairways planning, dredging planning etc.

HYDROGRAPHIC INFORMATION SYSTEM (HIS)



Backups :

Automatic, into 3 different servers.

Databases are backed up nightly.

Raw data files weekly.

Database has also exact copy in different server using PostgreSQL feature „synchronous replication“

HYDROGRAPHIC INFORMATION SYSTEM (HIS)



WMS :

WMS layers :

Survey areas by IHO S-44 order or survey time

Depths up to 5m resolution

Contours up to 1m interval

Rocks, wrecks, obstructions

AtoN

Harbours

<http://195.80.112.238:8080/HIS/WMS?REQUEST=GetCapabilities>

HYDROGRAPHIC INFORMATION SYSTEM (HIS)



DISPLAY :

1. Layers:

base map (land charts and ortophotos over WMS from Estonian Land Board, S-57 maps from PRIMAR) , survey areas (status, survey time and IHO S-44 orders), wrecks, rocks/obstructions, AtoN, harbours, depths up to 5m resolution, contours up to 1m intervals.

2. Features:

zoom, pan, click on objects brings up info about this object, tooltips (hovering mouse on objects brings small info about underlying objects), measurements, coordinate key in, overview window, queries etc.

HYDROGRAPHIC INFORMATION SYSTEM (HIS)

