

BSHC Portal Specification Ver: 1.0

Basic goal

- To implement a portal for easy viewing and download of a BSHC homogenous bathymetric model.
- Increase the possibility to access bathymetric data models for other purposes than navigation and increase the knowledge of the bathymetry in the Baltic region.
- Provide web-services possible to implement in other web-clients.
- The BSHC bathymetric model shall be compiled by existing data from official Hydrographic Offices.
- A first step is a homogenous 500m grid but the intention is to improve the resolution for the homogenous grid when data becomes available and can be handled without legal or financial limitations. Higher resolutions of the bathymetry may be provided over regions where data already today is available for such compilations.

Licensing and disclaimer text

The decisions taken on the BSHC-17 last September is:

- that a first set up of a BSHC Bathymetry Portal will be operated by SMA.
- that data provided from each country is processed by SMA for computation of a homogenous Baltic bathymetry model.
- to create a bathymetric model with 500 m resolution **available for public use, free of charge.**

Despite this decision a Created Commons – **Non Commercial licensing** has been suggested as below as a first start. The following text is suggested to be used as a disclaimer/licensing text prior to entering the portal and has slight adjustments compared to the earlier suggestion:

The presented bathymetric data is not to be used for any safety or navigational purposes as it is made up as a digital terrain model where interpolation and smoothing algorithms have been used.

The digital terrain model is the property of the Baltic Sea Hydrographic Commission, BSHC. Any downloadable separate datasets from this site is the property of the originating Hydrographic Office by which they are provided and separately licensed. For data downloads using links from this portal please refer to the respective download site regarding terms of use for the provided data.

All data and metadata served directly from and presented on this website is provided free for non commercial use based on the following licensing principle:



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Technical Specification

Below are listed different topics in tables that arise from the Excel sheet regarding specifications and the rightmost column contains the average sum of the ranking given in the replies.

All points are classified as the result in the Excel sheet and the codes are as below:

- D** = Demand that cannot be left out in order to give **basic** functionality to the portal
- O** = Optional functionality that can give good **additional value** to the portal
- S** = Secondary functionality. Nice to have but not needed. Adds just **minor value** for a small fraction of the portal users
- U** = Unwanted. Use this only if a functionality as you see it reduces the usability or quality of the portal

Supported datum's

Datum's for downloads and services

Download services shall provide the following reference systems/datum/projection

Demands

S08	EPSG:4326 (WGS84)	D	
S07	EPSG:4258 (ETRS89)	D	

If it isn't too much effort, download services may also provide the main or de facto default projection for each participating country around the Baltic.

Each country, please revise the EPSG codes listed below for your use.

Sweden: Sweref99TM, EPSG:3006
 Finland: EPSG:3047, EPSG:3067(Finnish default projection)
 Germany: EPSG:25832
 Estonia: EPSG:3301

Latvia: EPSG:3059
 Poland: EPSG:3045 / EPSG:3046
 Lithuania: EPSG:?
 Denmark: EPSG:?
 Russia: (Baltic)EPSG:?

Datum for viewing services

The datum for viewing in the portal is agreed to be in [EPSG:3035: ETRS89 / ETRS-LAEA](#)

Download formats

We agreed that most important is that the users can download XYZ-ASCII data primarily from the grid model. The countries allowing distribution of the underlying raw data will be able to distribute the data via space delimited XYZ-ASCII.

Demands

O09	XYZ-ASCII (grid model)	D	10.0
O08	XYZ-ASCII (underlying data)	D	9.4

Options

Formats that might be added later to the basic functionality.

Optional formats in order of importance

O02	Data GeoTIFF	O	8.4
O01	ESRI Shape (points)	O	6.8
O03	Arc ASCII grid	O	6.6
O05	BAG	O	6.0
O04	NetCDF grid	O	5.3
O10	LAS (Commonly used with laser bathymetry)	O	3.0

Functionality

Demands ordered after importance

F004	A Disclaimer text that prohibits any use of the data for navigational purposes, route planning or use in ECD displays. Clear statement of the data license. <i>Prior to entry of the portal, used for logging and statistics.</i>	D	10.0
F039	The web client shall be possible to run on the most commonly used web-browsers. <i>Preferably support starting from IE8.</i>	D	10.0
F014	Metadata shall be available for the compiled grid, following the INSPIRE directive.	D	9.5
F002	The BSHC logotype and name should be clearly presented on the first page of the portal.	D	9.0
F003	The BSHC logotype presented on all pages of the portal.	D	9.0
F005	Help shall be available to assist the use and download of data. It shall also contain information about what underlying data was incorporated into the model, and the methods for compiling the model. <i>Help should also be provided for use of WMS services in standard clients.</i>	D	8.5
F006	A map view with zoom and pan functionality shall be available.	D	8.8
F018	National responsibility areas shall be possible to display in the map. <i>Because some EEZ borders are not officially agreed upon, we will use the agreed ENC delimitations.</i>	D	8.0
F001	It should be possible to get access to the portal and view data without the need for any software installation.	D	7.8
F015	The grid resolution of the first generated homogenous model is 500m. <i>As agreed upon on the BSHC-17th conference.</i>	D	7.8
F020	It shall be possible to download data from the Bathymetric Model for non-commercial use. <i>As suggested in the request for data sent 2012-12-07.</i>	D	7.3
F021	The bathymetric model shall be available by services following the INSPIRE directive. Using WMS, WFS and WCS when and if needed.	D	7.3
F025	For all grid cells it should be possible to get information whether or not a cell contains actual measured values or interpolated data.	D	7.3
F026	For the Entire model the spacing of the used underlying dataset shall be accessible. <i>If only low resolution data is provided to SMA such information is needed to be forwarded together with the data.</i>	D	7.3
F009	Bathymetry presented as a 2D surface model with hillshading.	D	6.5

Optional Features ordered after importance

F008	Bathymetry presented as a 2D surface model without hillshading.	O	9.3
F024	Download services shall be described with Metadata as well as licenses provided by each country. <i>Underlying data separate licenses! Model data common license.</i>	O	8.5
F029	Possible to present isolines on top of the bathymetrical model. Contours derived from the modelled data.	O	8.0
F016	Higher resolution models can be provided on areas where the responsible HO allows and the available underlying datasets support such.	O	7.0
F033	Possible to present depth figures on top of the model. <i>Preselected and scale dependant.</i>	O	6.5
F028	Possibility in the portal to present WMS and WFS-services provided by HO or Land Survey etc.	O	6.3
F023	Download service for underlying data for countries that have no INSPIRE services but allow download of a certain resolution. For countries having such services, links shall be provided.	O	6.3
F007	Possibility to hide all tools and text to show just a clean map view.	O	6.0
F022	Other presented (selectable) layers shall be available by services following the INSPIRE directive. Using WMS, WFS and WCS when and if needed. <i>Depending on permissions by each data provider.</i>	O	5.8
F030	Possibility to present a depth profile between selectable points in the model	O	5.5
F011	Topography over land areas presented in the map. <i>Possibly from available freely distributable data. Fin and Est, has height data that can be used via WMS services.</i>	O	5.0
F013	Land Height data incorporated into the grid model.	O	5.0
F017	User selectable colouring of the map. <i>Some predefined colour schemes, e.g. blue scale and B&W hill shaded relief. Possibly also rainbow colouring.</i>	O	5.3
F027	Calculated model of uncertainties in the bathymetric model shall be provided.	O	4.0
F012	Topography over land areas possible to download. <i>Possibly from available freely distributable data.</i>	O	3.3
F031	Possibility to calculate and present a Hypsograph between selectable points in the model. <i>Presents the distribution of depths along the line in %.</i>	O	3.0
F032	Possibility to calculate and present a Hypsograph for a selected area (polygonal). Presents the distribution of depths within the area in %.	O	3.0

Secondary feature ordered after importance

F010	Bathymetry presented as a 3D surface model. <i>Probably only possible for smaller areas at a time.</i>	S	6.0
F037	Possible to get coherent map sheets over larger areas by use of the portal. For possible use in research reports and so on. <i>Possibly TIFF, Geo-Tiff or PNG formats.</i>	S	4.5
F036	Possible to download compiled ready-made map sheets that are prepared for download on the portal homepage, without the need to use the portal. For possible use in research reports and so on. <i>Possibly TIFF, PNG or PDF formats.</i>	S	4.3
F040	The web client shall be viewable on tablets such as iPad and Samsung Galaxy Pad. <i>Main focus on iOS and Android</i>	S	4.0
F035	Possible to download height-Isolines with selectable interval based on available height data. <i>Depends also on if heights are available.</i>	S	3.8

Unwanted features

F034	Possible to download depth-isolines with selectable interval based on the bathymetric model. <i>Comments from the WG that it might lead to navigation.</i>	U	
F019	Territorial borders shall be possible to display in the map. <i>Several borders (also the Swedish) are not available for official digital presentation or use.</i>	U	

Features proposed on the meeting

P001	There is a user friendly help on how to use WMS/WFS in GIS-tools/clients. <i>Possibly a help button that links back to the portal homepage where this information can be retrieved.</i>	D	proposal
P003	Data density layer. <i>Probably the same as F026</i>	D	proposal
P004	Legends for the colour schemes	D	proposal
P005	Hover function for x,y,z on the map. Preferably both projected and WGS84 (decimal degrees). <i>WGS is first priority if not both is possible.</i>	D	proposal
P002	Possibility of getting information on updates. Feed or Mail. <i>Planned to use a listserver for e-mail distribution.</i>	O	proposal
P006	Questionnaire for the portal users to fill out, for us to get information about the users about which we know very little about.	O	proposal

Non-functional features

N001	The portal has a validation service that validates that a specific user/IP has accepted the disclaimer.	D	proposal
N002	The portal has logging of all downloading users. Important to be able to track and block inappropriate use.	D	Proposal

Capacity

Capacity demands has to be studied a bit more. One way of getting an idea of a reasonable capacity of the system is to look at the INSPIRE SLA demands. We would of course want the system to even better.

The system shall manage:

- 20 View service requests per second
- 10 Download service requests per second

Performance

INSPIRE demands states that the system shall manage to:

- Serve an image 800x600 pixels, 8 bits in maximum 5 seconds under normal conditions.
- Serve a file download with the speed larger than 0,5 MB/second or 500 spatial objects per second under normal conditions.

When it comes to serving pre-rendered tiles with the size 256x256 or 512x512 pixels the speed has to be large. Preferably a full screen map viewer for example with resolution 1200x1600 would be populated in 1 or maximum 2 seconds. This of course is tightly coupled to the bandwidth of the computer on which the map viewer is located.

Uptime

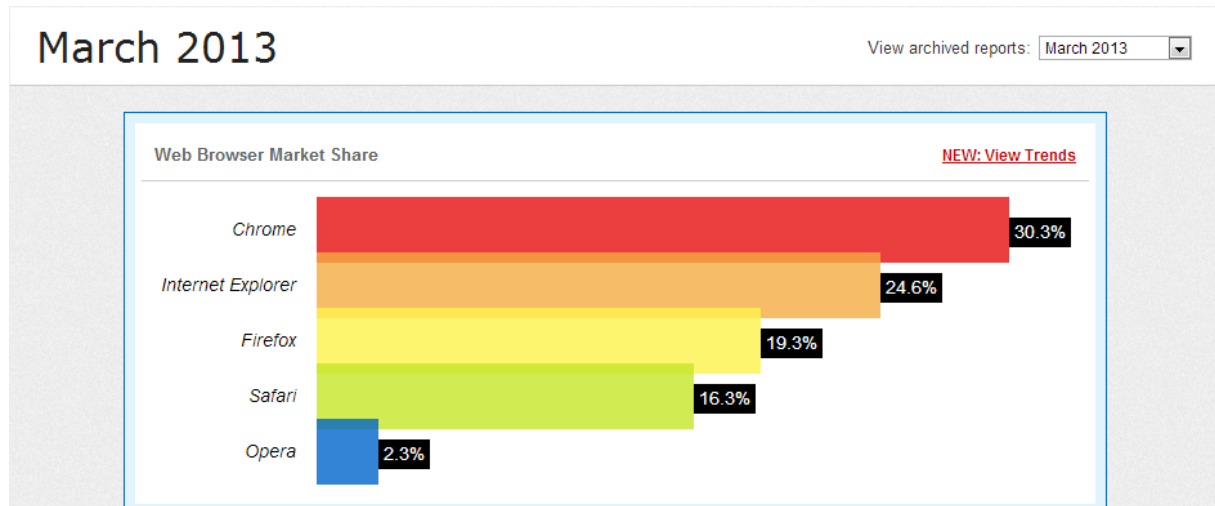
INSPIRE states an uptime of 99%. This is a fairly good demands and surely possible to achieve.

It means that you are allowed to stop the system for maintenance for 3,65 days a year.

Browser support

Looking at the latest web browser market share graph, we see that Chrome, Firefox and Safari are growing whilst Internet Explorer are losing shares. This is the global trends for March 2013 from W3Counter.

Global web browser market share

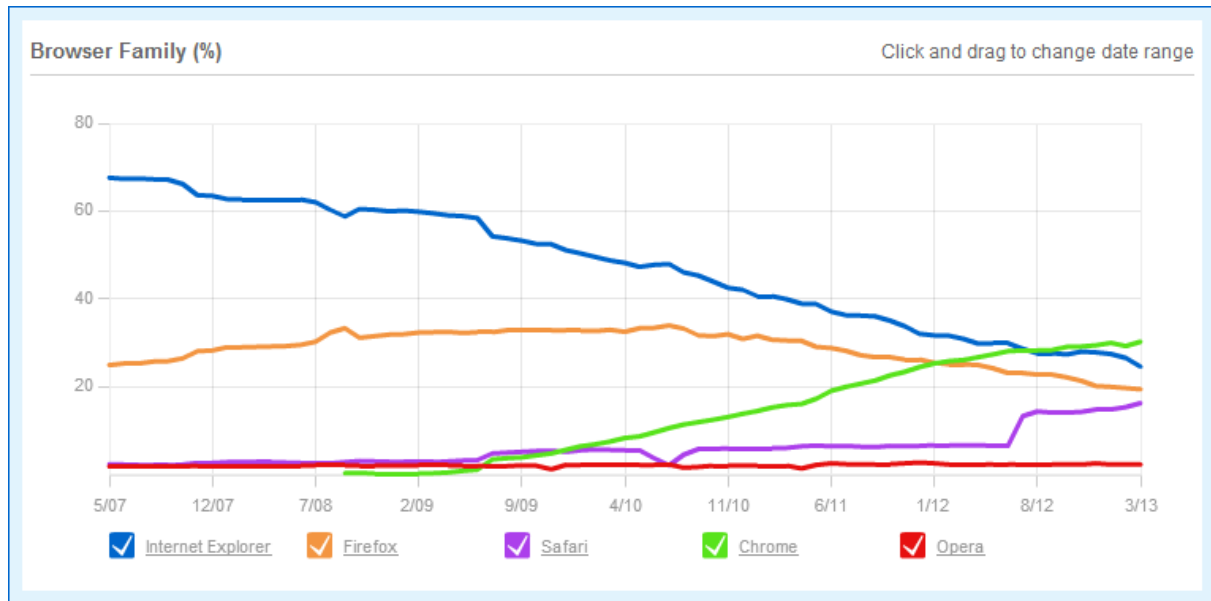


Source: W3Counter

<http://www.w3counter.com/globalstats.php>

Web Browsers

1	Chrome 25	24.14%
2	Firefox 19	13.13%
3	Internet Explorer 9	9.39%
4	Internet Explorer 8	7.19%
5	Safari 6.1	5.63%
6	Internet Explorer 7	5.02%
7	Safari 6	3.98%
8	Android 4	3.40%
9	Safari 5.1	2.98%
10	Safari 4	1.82%



This graph shows the trends from 2007 till present time.

But the global trends are not reflecting local distribution.

We therefore decided to take a look at user statistics of geodata.se and SMA.

Browser statistics of Geodata.se (1 jan - 31 mar 2013)

Internet Explorer 9	26,8%
Internet Explorer 8	26,6%
Firefox 18	6,8%
Firefox 19	5,7%
Chrome 24	4,3%
Chrome 25	2,9%
Internet Explorer 7	2,4%
Firefox 17	2,3%
Safari 5.36	2,2%
Chrome 23	2,2%

Browser statistics of Sjöfartsverket.se

Internet Explorer	42,3%	(Internal default browser at SMA)
IE 9	20,2%	
IE 8	13,3%	
IE 10	5,6%	
IE 7	2,8%	
Firefox	24,5%	
Chrome	13,0%	
Safari	12,6%	

A conclusion might be that it is more common among governmental and municipal users to use the preinstalled Internet Explorer browser and that is why we have to support at least Internet Explorer 8 and up.

The statistics of Internet Explorer is probably increased by the fact that IE (ver 8-10) is the default browser at SMA and that most users are not allowed to install any other browser. Some information needed by the employers at SMA also for internal use is only available on the public homepage.