WHAT IS THE GLOBAL FRESHWATER DIVERSITY ATLAS?

The Global Freshwater Biodiversity Atlas is a gateway to published and open access freshwater biodiversity maps with spatial data represented at different scales. It offers a unique opportunity to see interactive online maps accompanied by short scholarly articles containing further related information. It also provides direct links to key scientific publications as well as data sources related to freshwater biodiversity at a global, continental and local scale.

ATLAS HOME PAGE

When you select the Global Freshwater Biodiversity Atlas via the BioFresh information platform at www.freshwaterbiodiversity.eu you will find three main options to investigate the content. These are depicted with a picture-box giving you further opportunities to access the wealth of associated materials. The three main options are:

- Explore
- Maps
- Contribute
You can access the contents of the Atlas directly by selecting the Explore box. Be aware that the Atlas is organised into four main chapters that are presented using distinct picture-boxes that enable you to access all of the comprehensive Atlas materials from different perspectives:

**FRESHWATER BIODIVERSITY**
- Current biodiversity patterns for all freshwater taxa groups as well as predicted and past biodiversity maps for selected groups can be accessed from here.

**FRESHWATER RESOURCES AND ECOSYSTEMS**
- Background information on freshwater resources like precipitation, runoff and discharge as well as maps on rivers, lakes, wetlands, groundwaters and ecoregions can be accessed from here.

**FRESHWATER PRESSURES**
- Maps and brief summaries of, for example, climate and land use change, pollution, water extraction, invasive species or water-related diseases can be accessed from here.

**FRESHWATER CONSERVATION AND MANAGEMENT**
- Overview of protected areas, key biodiversity areas (KBAs), research networks as well as management and restoration efforts can be accessed from here.

Each chapter is also structured into sub-chapters.
For example, selecting the FRESHWATER BIODIVERSITY chapter will provide you with access to three sub-chapters. These are also presented using distinct picture boxes:
- Contemporary freshwater biodiversity
- Climate change and freshwater biodiversity
- Past freshwater biodiversity

Thus, by selecting a particular chapter title you are given the opportunity to choose from a further selection of sub-chapter headings. When you select a specific map it will automatically open an associated profile page. This will provide extensive information about the map source(s), author(s), contacts etc. as well as linking to the interactive map interface and a related scholarly article.
EXPLORING THE MAPS – The “EXPLORE” box

There are a number of additional ways to find maps within the Global Freshwater Biodiversity Atlas:

KEY WORDS

You can use the “Keywords” box, for example, that is provided at the bottom of the EXPLORE page. Note that the keyword font size is proportional to the number of maps related to that particular keyword. Clicking on a keyword thus provides direct access to a list of related maps. Selecting a map opens a profile page, giving information about the map source(s), author(s), contacts etc. It also provides a link to the interactive map interface and a related scholarly article.

SELECT A CHAPTER

The “Select a chapter” box is provided on the bottom right hand side of the EXPLORE page. A selection list gives you the opportunity to choose chapters or sub-chapters of interest. Selecting a chapter gives direct access to the related sub-chapters, whereas selecting a sub-chapter provides access to a list of associated maps. Selecting a map opens a profile page, giving information on the map source(s), author(s), contact(s) etc. as well as linking to the interactive map interface and a related scholarly article.

SEARCH IN ALL CHAPTERS

The “Search in all chapters” box enables you to use custom keywords to search for specific maps within all chapters using a full text search. The search results will present a list of related maps. By selecting a map a profile page will open. This will provide extensive information about the map source(s), author(s), contacts etc. as well as linking to the interactive map interface and a related scholarly article.
USING THE MAP INTERFACE – The “MAPS” box

Selecting the “Maps” box takes you to the interactive map interface page.

The interactive map interface page includes information presented in boxes such as “Navigation” (1) and “Source/Citation” (2) on the left hand side and the main window (3) with the map and article on the right hand side.

The boxes on the left can be folded away by clicking the arrow right of the map title.

The “Navigation” box (1)

- **Chapters**: these enable you to browse through the Atlas chapters (presented in blue) and associated sub-chapters (shown in green). To open a sub-chapter click on the arrow or double click on the chapter title; to see the contents of a specific map just click on its title.
- **Base Layers and Overlays**: here you can choose one of the base layers for the map including satellite view, detailed country and regional boundaries or see spatial data from OpenStreet Map. Some maps may also include lakes and rivers as overlays that you can turn on or off.
- **Map Layers**: these present different aspects of a map, i.e. different layers of information for your selected map. Click on the radio button to choose the map layer of interest.
- **Map Caption**: this shows a short description of the map content.
- **Legend**: this box displays the colour codes used in the map.

Note that the “Map Layers”, “Map Caption” and “Legend” boxes will be displayed on top of the map in the main window on the right hand side, when you use the full screen version (further details below).
The “Source/Citation” box (2)

- The “Source” tab: shows the contributing institutions and provides the according relevant appropriate links to them; it also offers links to original publication(s) or data source(s) if applicable.
- The “Citation” tab: provides information about how the selected map must be cited when it is used elsewhere.

Main Window (3)

The main window may contain several tabs such as: “Map”, “Article”, “Extended Methods” and “Copyright & Downloads”. Note that the “Article” and “Extended Methods” tabs are only displayed if information is available for them.

The “Map” tab: this is where the actual spatial information is shown in an interactive map. It offers the following functions via distinct icons:

- **“Zoom in” icon**: click on this icon to zoom in or scroll upward with the mouse. You can also double click on the map to zoom to this point.
- **“Zoom out” icon**: click to zoom out or scroll downward.
- **“Zoom box” icon**: you can zoom directly to a specific area by drawing a box on the map and holding down the “shift” button whilst dragging the mouse around your area of interest.
- **“Pan” icon**: you can move your view of the map by clicking the pan and mouse buttons at the same time.
- **“Zoom to next viewed extent” icon**: enables you to return to the next map positions or views after you have navigated through the map.
- **“Zoom to previously viewed extent” icon**: allows you to return to the previous map positions or views after you have navigated through the map.
- **“Locate your position” icon**: you can display your current position by sharing your location details with the map. Note: the browser will ask your permission to locate your position first (unless you turned this feature off permanently thus denying permission).
- **“Info” icon**: you can enable/disable an information pop-up that you get when clicking on a specific feature on the map.
USING THE MAP INTERFACE – The “MAPS” box

Main Window (3)

The “Article” tab: shows a relevant scholarly article associated with the displayed map; it should help you to understand and explore the map content by setting a scientific context for it. It may also provide other useful additional information too.

The optional “Extended Methods” tab: presents further information about the methods used to generate your chosen map.

The optional “Copyright & Downloads” tab: displays important copyright information relating to your chosen map as well as specifying the permitted download options.

Maximise option: opens the full screen version of the map interface (further details are given below).

Full Screen Version

The maximise option enables you to view the full screen version of your selected map.

If you choose the full screen version the interface will change slightly in its appearance. Some items from the “Navigation” box will now be placed as information boxes on the right hand side in the “Map” tab (i.e. Map Layers, Map Caption and Legend). Additionally an “Overview map” box will appear indicating the actual extent of the current view in relation to the global map. To expand or hide the content of these items just click on the arrow on the right hand side of the box header. You can change the height of the boxes by dragging the lower frame up or down.

To toggle the display of these boxes at the top of your map click on the following icons located on the lower left hand side of the map:

- Toggle map layers box.
- Toggle map caption box.
- Toggle legend box.
- Toggle overview map box.

The minimise option enables you to leave the full screen version of the map.
USING THE MAP INTERFACE – The “MAPS” box

Other options

• Return to the map profile page: click on the map title in the header on the left hand side (small screen version) or on the top right (full screen version) to return to the map profile page.
• Return to the Atlas homepage: select the Atlas title in the header to return to the Atlas homepage.
• Return to the BioFresh platform: click on the BioFresh logo in the header area of the webpage to return to the BioFresh platform.

CONTRIBUTING TO THE ATLAS – The “CONTRIBUTE” box

You will find information about how to contribute and publish your own spatial findings on the Atlas by clicking on the “Contribute” box found on the Atlas homepage.

WHY CONTRIBUTE?

The Global Freshwater Biodiversity Atlas is a new and unique way to make your results visible to a wider public audience and thus improve both their visibility as well as providing an opportunity to acknowledge for the hard work you are carrying out. Any relevant freshwater spatial result can be featured in the Atlas, once BioFresh scientists have reviewed it. Thus your contribution can lead directly to the further development of global freshwater biodiversity science.

HOW TO CONTRIBUTE

Maps and spatial data can be made available to the Atlas team in different formats, preferably as grid, shapefile or as an associated spatial database with map styles such as ArcGIS or OpenSource GIS style files. All maps must be accompanied by short articles that set the context of the map contents and thus should enable users with the interpretation of the displayed data. Guidelines for the article can be found in the “contribute” section of the webpage.

If you are interested in publishing your results please contact the Global Freshwater Biodiversity Atlas editorial board: atlas@freshwaterbiodiversity.eu.