

# IAS INFORMATION PORTAL IN SOUTH-EASTERN EUROPE

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# IAS information in the Balkan region – state of play

- Fragmented information
- Lack of common methodological approaches and guidelines - data are collected predominantly through projects, each with its own methodology and scope of work
- Low data harmonization, very difficult for comparison, e.g. cross-border issues are extremely difficult to tackle
- No real region-wide information infrastructure

# Availability of technology

At the same time there is readily available technology which can in inexpensive manner be used to fill the gaps in existing information.

Initiatives strongly supported by EC:

- **Cloud computing**, with a distributed set of source web-based services and a decentralized infrastructure, where the user only needs low own computational power
- **Open data specification and interoperability** – interoperability is recognized as one of the main issues needed to be addressed for the purposes of a better coordination between MS
- **Free and open source**
- **INSPIRE regulation** – aiming at more coherent European space

# Invasive alien species database and toolbox

- Web based (in the cloud)
  - Components:
    - Database - open source relational database with search and authoring components
      - Search functionality
      - Edit functionality
      - Open exchange of information – interoperable and easy exchange of information through SQL, OGC, etc.
      - GIS component, where users share and use other geospatial information about IAS
      - Following the logic of INSPIRE and OGC
    - Metadata tool
- OpenLayers - [www.openlayers.org](http://www.openlayers.org)

## Example:

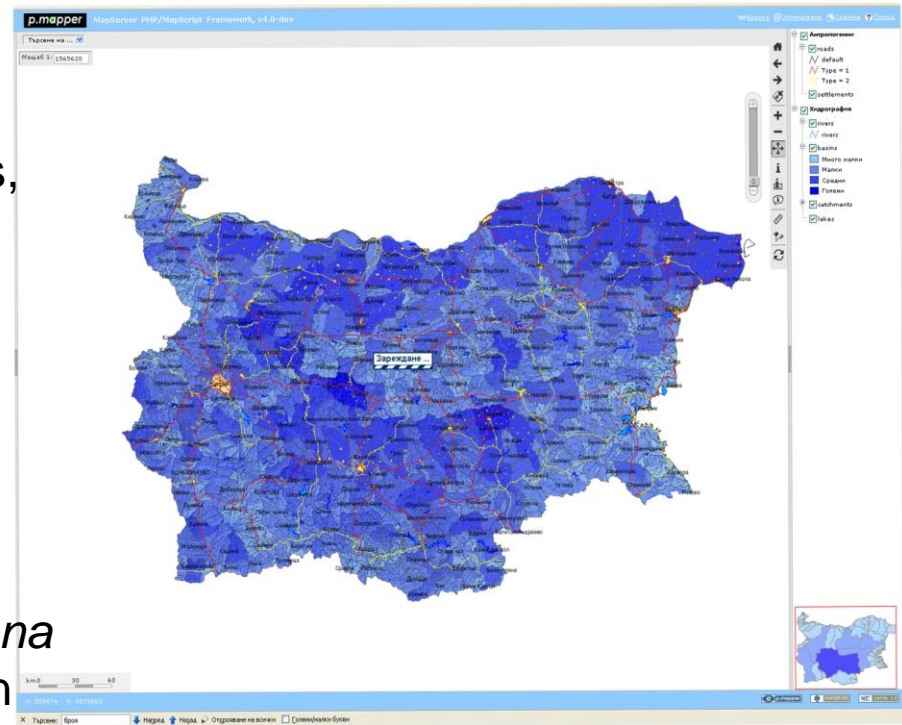
### Aquatic invasive species GIS database and portal

An online GIS database and interactive map <http://www.dreissena.info/gis> were developed to provide information on zebra and quagga mussel native and invasive distribution in Bulgaria.

- Software used
  - Sophisticated free open source technology
    - Rich functionality equivalent to proprietary products
    - Preserves scarce budgetary resources
    - In accordance with initiatives for interoperability and open information exchange
    - Excellent integration of products
      - Joomla
      - Mapserver
      - PostGIS
      - pMapper
      - Quantum GIS

## Data presented:

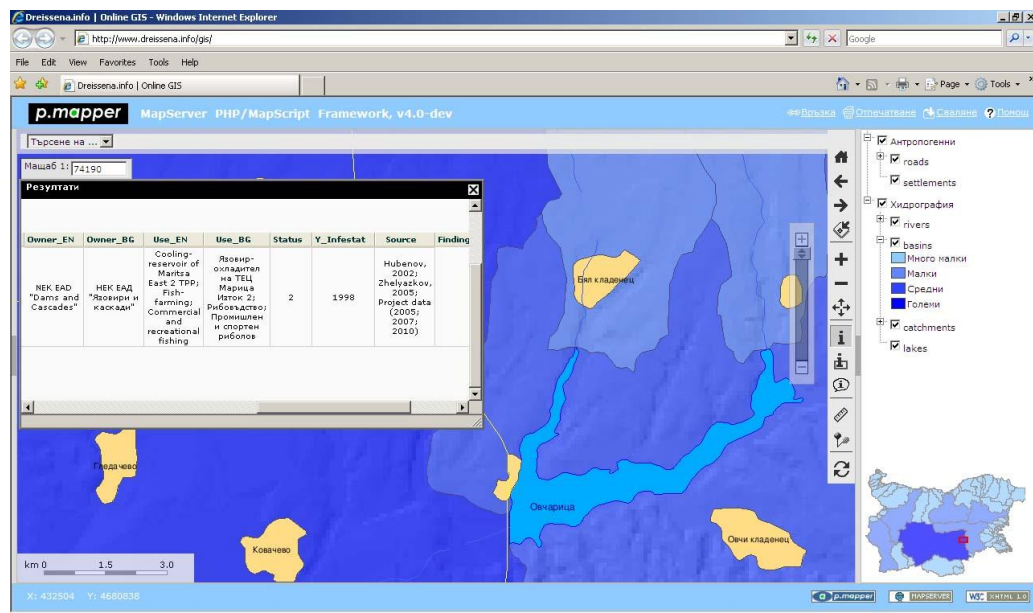
- Hydrography - rivers, lakes, reservoirs, catchments, watersheds, irrigation channels
- Relief
- Administrative data – settlements, administrative boundaries, reservoir management and use
- Transportation – road infrastructure
- Environmental data – data on *Dreissena* distribution and infestations, population density, year of first record, references, risk categorization of the water body.



Currently the database offers hydrographic data about 192 lakes, 11 marshes, and 124 reservoirs. It presents data about reservoir management and use for 86 reservoirs. The database includes historical and present data about *Dreissena* occurrence in 44 lakes and reservoirs.

## Application of the GIS database:

- For awareness raising among governmental and non-governmental institutions, local authorities, reservoir managers, fishermen, tourists, etc.; for educational purposes
- For research, e.g. for analysis of introduction pathways of *Dreissena*
- As a basis for the development of national early warning and rapid response system related to *Dreissena* invasions
- For risk assessment and management purposes



# Why IAS information portal in South-Eastern Europe

- Awareness, understanding, policies, priorities, management – already mentioned
- Specific biogeographical regions and species complexes



## Examples from Bulgaria

Eurosiberian and Mediterranean biogeographical regions with Anatolian-Iranian, Pontian, and other elements

The territory of Bulgaria belongs to two main drainage basins: Black Sea (57% of the territory) and Aegean Sea (43%). The Black Sea drainage basin divides into the Danube River basin (42%) and the Black Sea rivers with direct drainage toward the Black Sea (15%).

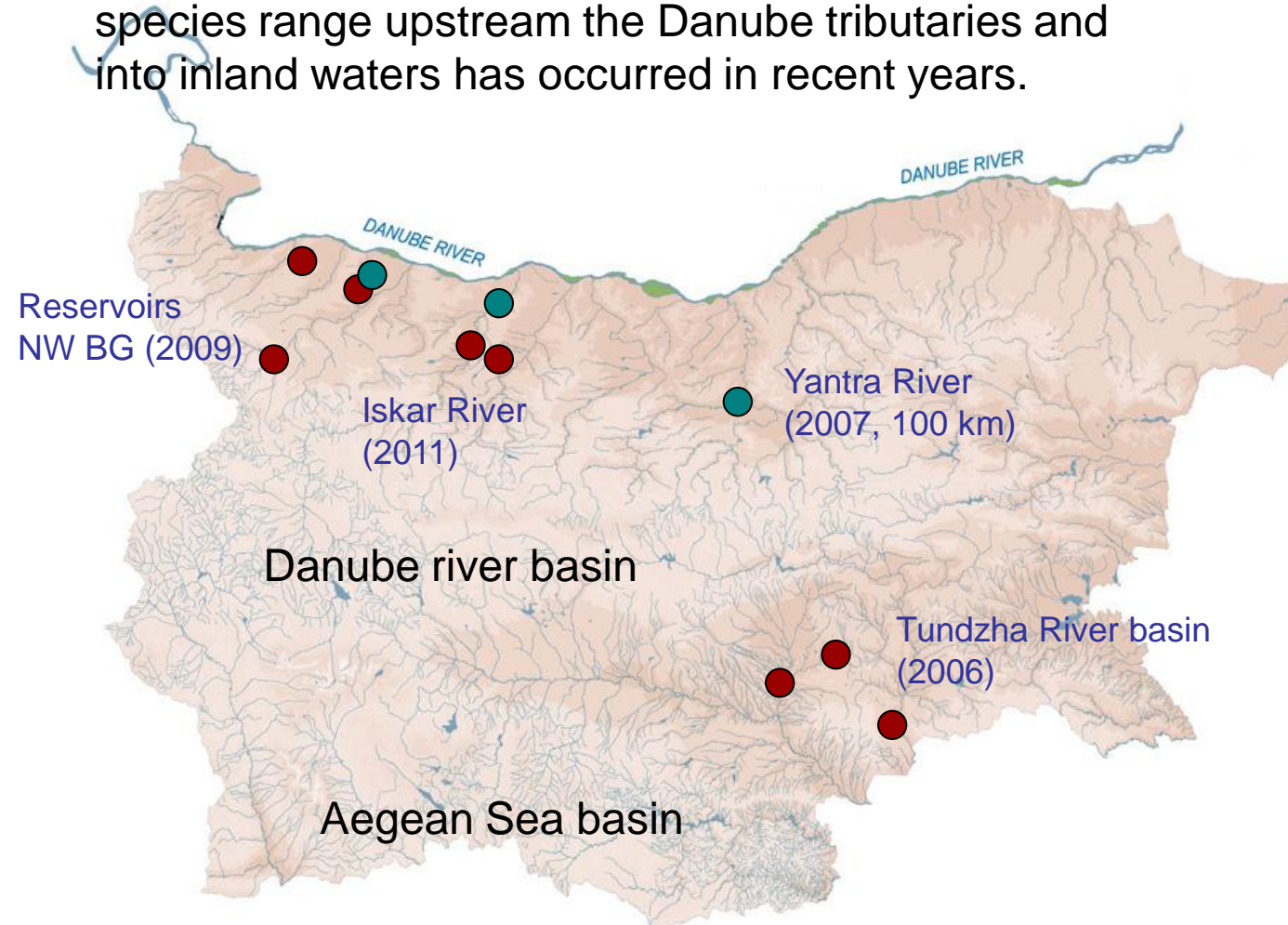
→ Each basin is characterized with specific aquatic fauna.

- Ponto-Caspian species
- Endemic species

## Example 1 - *Neogobius* spp.

Native in the Lower Danube.

In the last decade a considerable increase in abundance of *Neogobius* species in the Danube has been observed. In Bulgaria, an expansion of the species range upstream the Danube tributaries and into inland waters has occurred in recent years.



● *N. melanostomus*



● *N. fluviatilis*



## Example 2 - Zebra mussel, *Dreissena polymorpha*



Another example is the highly invasive Ponto-Caspian species zebra mussel, which was reported initially from the Danube River, from the lowest reaches of its tributaries, and from the Black Sea coastal lakes and rivers.

In 2000, it was reported as introduced in several reservoirs in the North-West Bulgaria, and in one reservoir in the South of Bulgaria.

In 2011, the species has already spread in more than 30 lakes and reservoirs in all regions of Bulgaria within the Black Sea and Aegean Sea river basins, threatening the native ecosystems and causing serious damages to different industries.

## **What would be the objectives of a regional information portal on IAS in SE Europe:**

To provide data on:

- IAS in the region – scientific names, biology, ecology, habitat, invasiveness, pathways of introductions, and impact (species lists, species factsheets; basic or more detailed information)
- First findings, distribution and spread of IAS in SE Europe (species alerts; interactive distribution maps – for the region, biogeographical approach, by country)
- Risk assessment and management information on IAS (risk assessment protocols, management option and practices, IAS action plans)
- Regulations, guidance, scientific references related to IAS

### **Hosting:**

Bulgaria - Bulgarian Academy of Sciences in partnership with the Ministry of Environment and Water