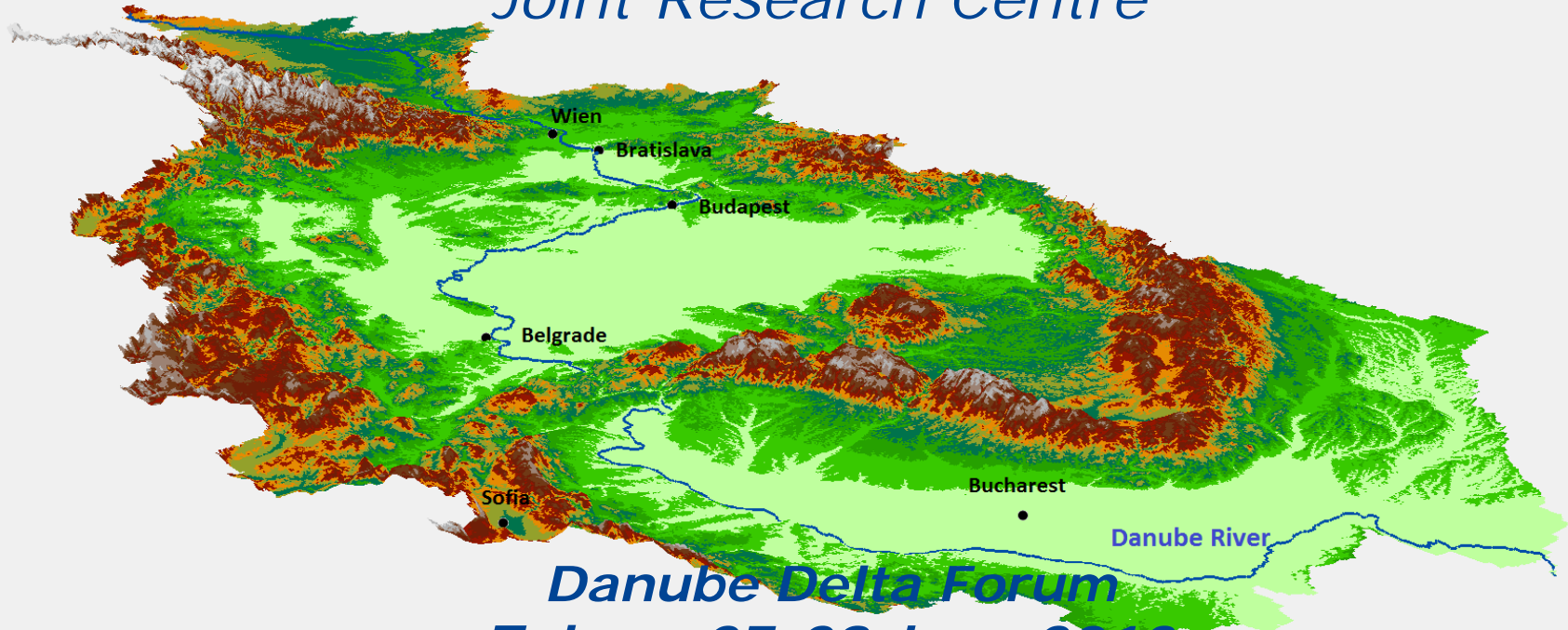




# Managing waters from source to sea

Giovanni Bidoglio

*Joint Research Centre*



**Danube Delta Forum**  
**Tulcea, 27-29 June 2013**



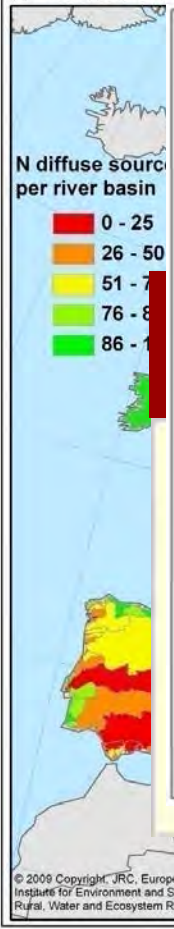
## What have I learnt on the Delta so far?

- The richest Romanian county in natural and human biodiversity (Mayor of Tulcea)
- Difficult to keep young people to continue traditional activities (Trifon Belacurencu)
- How much useful is agriculture to improve habitats, competitiveness, food production and how much difficult it is to ensure that all this happens under good environmental conditions ([Gina Fintineru](#))
- The risk of extinction of sturgeon species has socio-economic implications in the Delta ([Juerg Bloesch](#))
- Need to bring together stakeholders, scientists, decision makers, business environment in cross-border projects ensuring sustainable development ([Doru Dragomir](#))

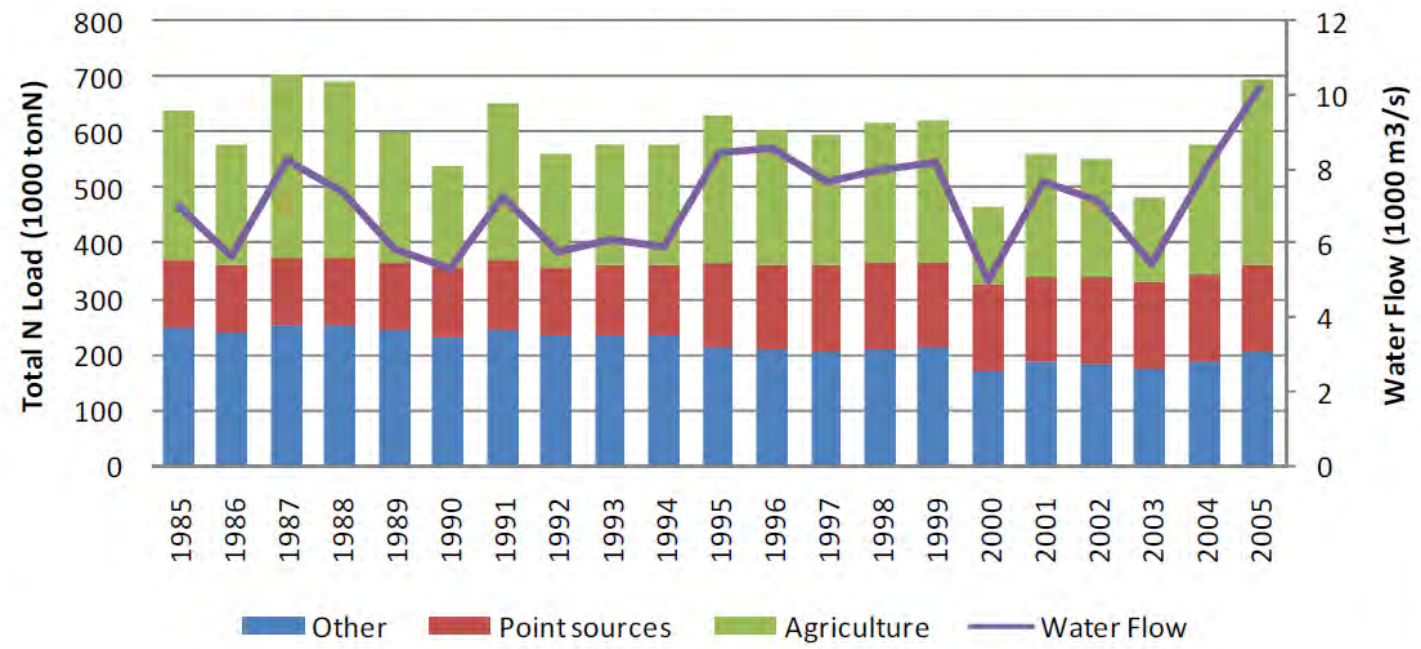
### Nitrogen source apportionment per river basin 2005

Administrative boundaries: ESRI

Map Projection: ETRS89 Lambert Azimutal Equal Area



### Nitrogen Load - Black Sea



Pressures on water caused by agricultural pollution and hydro-morphological modifications constitute the main

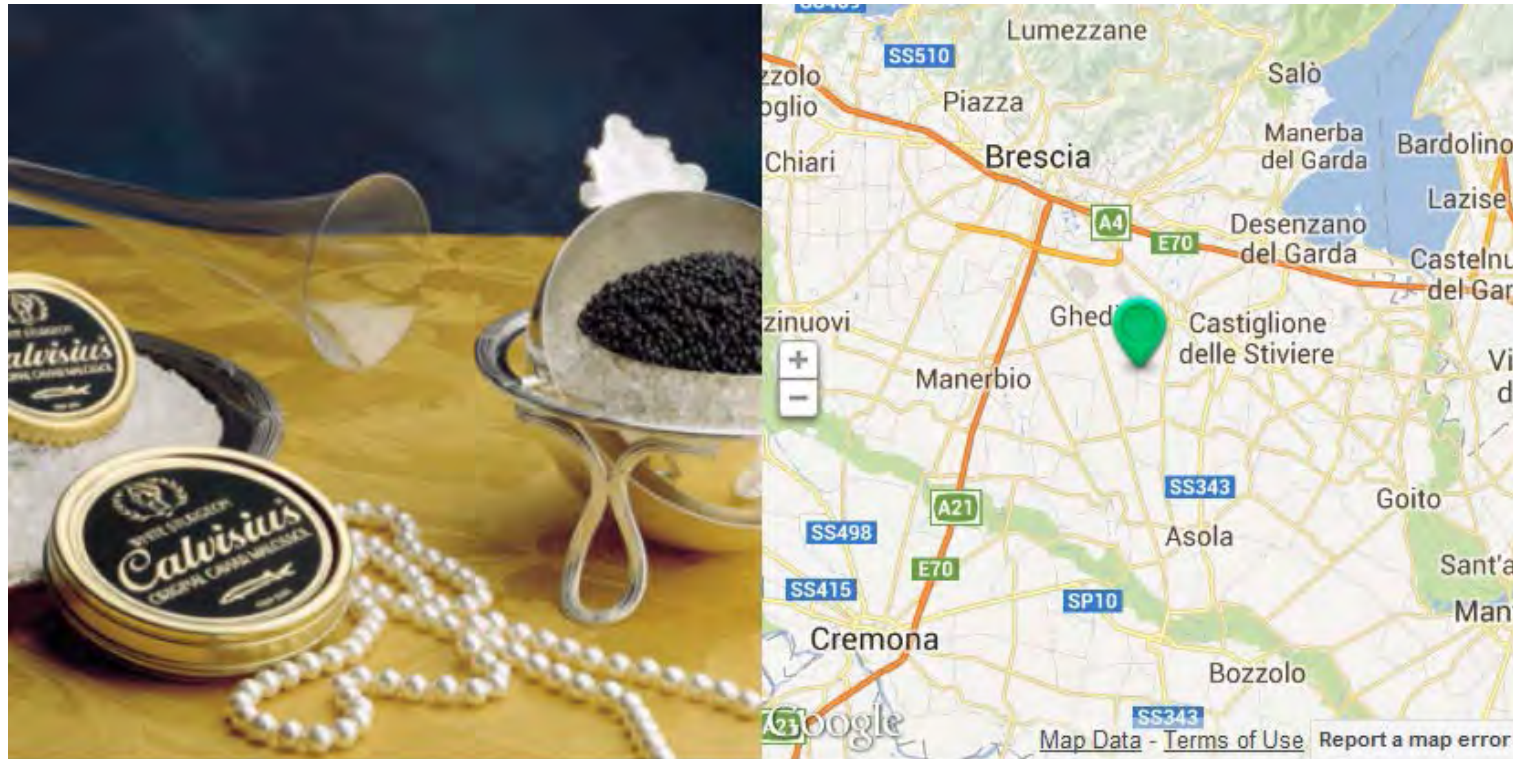
Water environmental

for 2005

<http://fate.jrc.ec.europa.eu>



## The Italian caviar

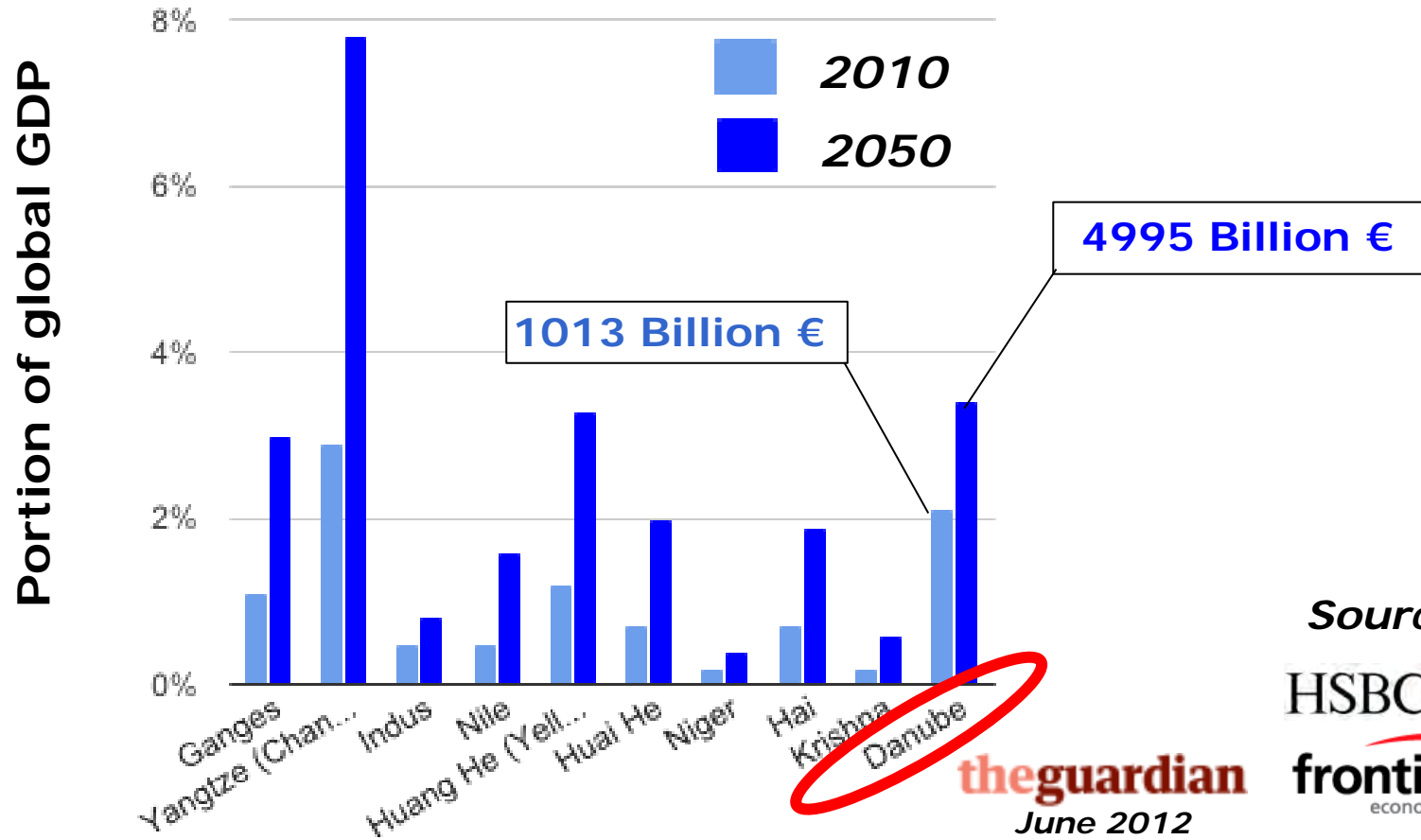


### PURE GOLD: CAVIAR

You might be surprised to learn that Calvisius caviar is produced in Brescia. This is the story of the white sturgeon, a marvellous creature which can live up to 100 years and weigh up to 400 kg, growing as much as 6 metres in length. White sturgeon is a

# Water as opportunity for growth

Economic output of the world's ten most populous river basins will exceed that of the USA, Japanese and German economies combined, but only if water scarcity is addressed



Sources:



theguardian

June 2012



## Nature providing multiple ecosystem services

- Annually, the European river network is estimated to remove 1.5 million ton of nitrogen
- Valuation of such water purification services by using replacement costs of constructed wetlands
- Scenario assuming the addition of 112.000 km<sup>2</sup> of floodplains to the river network
- 7 % decrease in loading to European seas
- 13 % increase of the monetary value of this service (€ 1.4 billion)
- Other benefits: water regulation to control flood (ca 6.4 billion € per year)

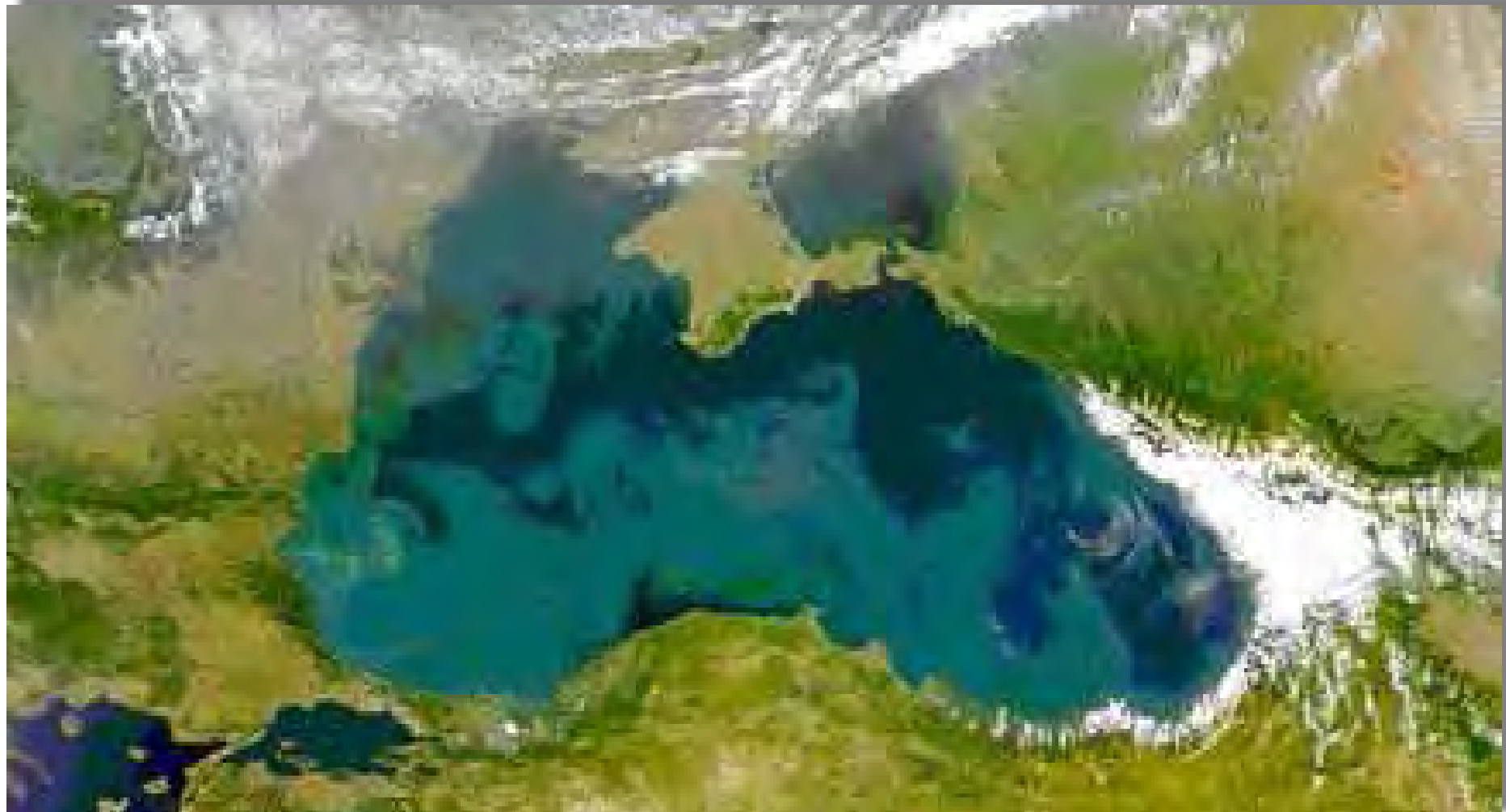




## JRC support to the Danube Strategy: the Water-Agriculture-Energy-Ecosystems Nexus

- Evaluate **availability, demand and quality** of water in terms of competing objectives of the different water-using sectors in the Danube Region
- **Agriculture and energy** as the priority sectors in which water saving and efficiency should be improved in order to protect a sensitive ecosystem and avoid a future of water scarcity
- Look at the implications for **water resources allocation** and water security

## From source to sea: Integrate Danube and Black Sea Perspectives







# A challenging delivery

1. Scenarios of **environmental and economic impacts** of alternative water allocation measures across competing water-using sectors for the years 2030-2050, including an assessment of the **provision/valuation of ecosystem services**
2. Methodology for modelling of water resources in the Danube river basin, integrating **quantity, quality, ecology and hydro-morphology, in coordination with other tools at national and river basin level** and extension to non-EU countries of the Danube Region
3. Supporting efforts of countries and international cooperation bodies in the **implementation of the Water Framework Directive** and planning of medium and long-term actions for the 2<sup>nd</sup> and 3<sup>rd</sup> cycles of River Basin Management

## ... through collaborative work

- **Build on existing experience** deriving from national projects and international initiatives (e.g. ICPDR, KLIWAS, GLOWA-Danube, Danube Flagship Project DREAM, Study Center River Delta-Sea systems)
- Establish a **Transboundary Modelling Partnership** aiming at the development of a multi-model ensemble for the Danube river and the Black Sea with a common database
- Facilitate **joint building of assessment capacity** and contribute to harmonization across countries



# Thank you for your attention

[giovanni.bidoglio@jrc.ec.europa.eu](mailto:giovanni.bidoglio@jrc.ec.europa.eu)

