

Joint Surveys for the Danube, Danube Delta and Southern Africa

About the Joint Danube Survey 3: The Joint Danube Survey 3, also known as 'JDS3', is the world's biggest river research expedition in 2013. Its main goal is to produce highly comparable and reliable information on water quality and pollution for the entire Danube River and many of its tributaries and to raise awareness about the importance of the Danube and sustainable water management. The International Commission for the Protection of the Danube River (ICPDR) coordinates the implementation of JDS3. Launched on August 14, 2013 from Regensburg, Germany, the boats of the JDS3 will travel 2,375 km downstream the Danube River, through 10 countries, to the Danube Delta in Romania and Ukraine until late September.

Since its first launches in 2001 and 2007, the Joint Danube Surveys (JDS) have accumulated crucial scientific information about the Danube River Basin to improve understanding and decision making. New species for the Danube have been discovered and a database of over 10,000 photos of the river's structures has been produced. Lessons from the JDS success story have helped to initiate and plan similar freshwater surveys in the Danube Delta and southern Africa. In this fact sheet, you find an overview on the previous Joint Danube Surveys and how they served as important models for related efforts elsewhere.

The Joint Danube Survey 1 (JDS1) of 2001

The six-week long *Joint Danube Survey 1 (JDS1)* was launched on August 14, 2001 from Regensburg, Germany. It was the first expedition to ensure a homogeneous set of data about water quality with a high comparability of results for much of the Danube River (2,581 km), and to identify and confirm specific pollution sources.

The expedition was organized by the ICPDR and included an international team of ten scientists from Germany, Austria, Slovakia, Hungary, Yugoslavia, Bulgaria and Romania. The team was on-board two ships -- the then German (now Serbian) *Argus* and the Hungarian *Széchenyi*. Each participating country further provided in-kind contributions through national teams of experts who worked with the international JDS experts on their national stretch of the Danube. Funded by Germany and Austria, the overall cost of the expedition was over 556,000 Euros.

Hundreds of samples were collected from selected river cross-sections at 98 sites. Over 140 different parameters were tested including chemical pollutants, biological parameters, aquatic flora and fauna and bacteriological indicators. Some parameters (e.g. pH) were measured on-board the laboratory ship *Argus* immediately after sampling. The rest of the samples were carefully preserved, stored and sent to laboratories.

The JDS1 produced a reliable and consolidated picture of the water quality of the Danube and its major tributaries in terms of chemical, biological and micro-biological parameters. Positive findings included

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high levels of biodiversity and rare species. Negative results included concern over organic and microbiological pollution, heavy metals, oil from ships, pesticides and chemicals. Significant awareness was raised about the Danube and the need for pollution reduction measures through major media and public events held at many locations visited by the ships.

Six years later, the JDS2 of 2007

The JDS2 was again organized by the ICDPR and again launched on August 14 from Regensburg, in 2007 – exactly six years after the JDS1 launch. Its main goal was to produce highly comparable and reliable information on water quality and pollution for the entire Danube River, and for the first time, for many of its tributaries.

The expedition attracted significant international cooperation from all Danube countries, from Germany to Ukraine, including EU and non-EU members. The full-time international team included 18 scientists who used three ships – again, the *Argus* and *Széchenyi*, as well as the *Piscius*, donated by the EU's Joint Research Centre to analyse fish. Teams of national scientists also helped with sampling and testing on river stretches within their countries. Costing over one million euros, financial contributions came from Danube countries, the European Commission and three private companies – the Alcoa Foundation, Dexia Kommunalkredit Bank and Coca-Cola Hellenic.

JDS2 successfully sampled 96 sites on the Danube River and 28 on its tributaries. JDS2 expanded on the JDS1 by adding new parameters and sampling locations. Some testing again took place on route, from analyzing water samples in the *Argus* laboratory to electro-fishing along the Danube's banks. Other samples were sent to laboratories throughout Europe for testing.

The findings confirmed that cooperation among Danube countries to reduce pollution was bringing positive results, with progress made in many areas since the JDS1. Water quality was generally improving, although more work was needed. People could swim in parts of the Danube River Basin, but not everywhere. People could eat fish without health risk, but further investigation of mercury concentrations was needed in some areas. Reducing nutrients and organic pollution was called for. The Danube still had significant natural populations of plants and animals. And the first ever systematic survey of the river's *hydromorphology* (physical characteristics of its shape, boundaries and content) identified large areas that remain in good natural condition.

The scientific teams further made many fascinating scientific discoveries, including species never found before in the Danube, such as the floating aquatic fern *Azolla*. A new database of over 10,000 photographs of the river's structures was produced. New techniques and technologies were also tested for the first time – many of which could improve the work of scientists across the globe.

Significant awareness was again raised about the Danube through a *Watch the Danube* campaign supported by local authorities and media living near the Danube and events in ten cities. An online diary presented daily stories and photos about new catches and near catastrophes.



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JDS lessons for the Danube Delta

On 26 September, 2011, two ships carrying 23 researchers from Moldova, Romania and Ukraine started their journey for the first *Joint Danube Delta Survey*. For 10 days, they performed hydromorphological assessments as well as chemical and biological tests from the mouth of the Prut River to the Black Sea, and in the main branches, channels and inner lakes of the Danube Delta. The Delta Survey was modelled on the success and lessons learnt from the two earlier Joint Danube Surveys. It represented one element of a broader project for the Delta, implemented by the ICPDR in cooperation with UNEP, UNECE and representatives of Ukraine, Moldova and Romania, the three countries sharing the Danube Delta Sub-basin.

The collected data filled knowledge gaps and was a step towards a homogenous data set for the Danube Delta Sub-basin based on a single sample procedure and laboratory analysis of specific elements. The survey was also important toward harmonising the monitoring systems of the three countries. Cross-border cooperation in the Danube Delta was greatly improved while public awareness was raised through information events. The final results served as an important step to developing a River Sub-basin Management Plan for the Danube Delta Sub-basin.

JDS lessons for southern Africa

The ICPDR forges alliances around the world to share experiences and develop collaborative solutions. Among its efforts, the ICPDR developed ties with the Orange-Senqu River Commission (ORASECOM) in southern Africa, shared its JDS experiences, and helped plan ORASECOM's first own Joint Basin Survey. In turn, the ICPDR learned about new useful approaches to surveying non-navigable rivers.

ORASECOM's Secretariat is based in Pretoria, South Africa. The Orange-Senqu River Basin extends over Botswana, Lesotho, Namibia and South Africa, covering an area of 985,000 km². The Joint Basin Survey, which took place in late 2010, provided a snapshot of the quality of the water resources of the basin, serving as a baseline against which improvements in water resource quality could be measured.

The survey was the first joint monitoring of the Orange-Senqu Basin supported by all ORASECOM Member States, and provided the first shared data on basin water quality. Public events were held in each Member State to help build awareness of the importance of maintaining river health. School children were among those involved, with the hope that they would continue to monitor and provide information to ORASECOM after the survey.

Further information:

www.danubesurvey.org – website of JDS3

<http://www.icpdr.org/jds2/> - website of JDS2

<http://www.orsecom.org> – Website of Orasecom