

4th International Conference
 on the Status and Future of the
WORLD'S LARGE RIVERS



Ob (Katur)



Murray-Darling



Congo



Amazon



Mississippi



Volga



3.-6. August 2021,
 Moscow, Russia // Online

CONFERENCE PROGRAMME





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Welcome to the International Conference on the Status and Future of the World's Large Rivers

On behalf of the Local Organizing Committee and the International Scientific Committee we want to warmly welcome you to the 4th International Conference on the Status and Future of the World's Large Rivers which will be held as online event hosted by Moscow State University, Russia.

The pressures and impacts on the World's Large Rivers have increased greatly in recent years, as a consequence of their exploitation to meet human needs. Large rivers are particularly exposed to problems of multiple uses, often with conflicting aims. At the global scale, there is no overview assessment of the current status of the World's Large Rivers, the conflicting demands on such rivers, and likely future anthropogenic impacts, as well as the potential for restoration and the associated problems.


In 2011 the first International Conference on „**The Status and Future of the World's Large Rivers**“ in **Vienna, Austria**, provided a global forum for a wide-ranging discussion of key issues related to research on large rivers and to their effective and sustainable management, involving both scientists and decision makers. This successful event was continued in **Manaus, Brazil** at the fascinating Amazon River in 2014 and then in **New Delhi, India** in 2017. Now, we have the pleasure to meet again – even though it is only virtually this time – hosted by Moscow State University.

We wish you interesting scientific talks and discussions and hope that you will also join our online social events like Ice Breaker and the World's Large Rivers Initiative Meeting!




Nikolay Kasimov
Co-Chair of
Local Organizing Committee




Sergey Dobroliubov
Co-Chair of
Local Organizing Committee





Natalia Frolova
Co-Chair of
Local Organizing Committee





Sergey Chalov
Co-Chair of
Local Organizing Committee




Helmut Habersack
Initiator and Chair of the
Scientific Committee

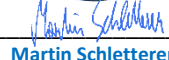



Bernhard Schober
Conference Secretariat




Michael Tritthart
IT Coordinator




Martin Schletterer
Co-Organiser of the
Scientific Committee



International Scientific Committee

Prof. Helmut Habersack (ISC-Chair & Initiator)

Bernhard Schober (Organizing Secretary)

Michael Tritthart (IT Coordinator)

BOKU - University of Natural Resources and Life Sciences, Vienna, Austria

Martin Schletterer

TIWAG-Tiroler Wasserkraft and

*University of Natural Resources and Life
Sciences, Vienna, Austria*

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Hydrology Expert, Mali

Luna Bharati

*International Water Management Institute,
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*Nanjing Hydraulic Research Institute, Ministry
of Water Resources, China*



International Partners

UNESCO – INTERGOVERNMENTAL HYDROLOGICAL PROGRAMME

We cordially want thank UNESCO United Nations Educational, Scientific and Cultural Organization represented by IHP Intergovernmental Hydrological Programme for its continuing and generous support. With the help of UNESCO in cooperation with BOKU and MSU many participants from developing countries, students and members of NGOs were enabled to present their work in this abstract book (see chapter “Supported Participation”).



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Hydrological
Programme



IAHR

**INTERNATIONAL ASSOCIATION FOR HYDRO-
ENVIRONMENT, ENGINEERING AND RESEARCH**



IAHS

**INTERNATIONAL ASSOCIATION OF HYDROLOGICAL
SCIENCES**



WASER

**WORLD ASSOCIATION FOR SEDIMENTATION AND
EROSION RESEARCH**



IAG

**INTERNATIONAL ASSOCIATION OF
GEOMORPHOLOGISTS**



SIL

INTERNATIONAL SOCIETY OF LIMNOLOGY



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*Lomonosov Moscow State University, Russian
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Anatoly Tsyplenkov (secretary)

*Lomonosov Moscow State University - Faculty
of Geography*



SPATIAL MOVEMENT OF WELS CATFISH (*SILURUS GLANIS*) IN THE DANUBE

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Wels catfish (*Silurus glanis*, Linnaeus, 1758) is one of the most targeted species for recreational and commercial fishing in the Danube River, even though studies of behavior and movement patterns of Wels catfish in the Danube are rare. Wels catfish was caught downstream of Iron Gate II hydropower dam and tagged with an ultrasonic transmitter (Vemco Ltd, V16TP). Nine autonomous receivers (Vemco Ltd, VR 2W) recorded detections of spatial movement downstream of Iron Gate II dam between Serbia and Romania for almost two years, between the years 2015 and 2017. Our telemetry data found that Wels catfish exhibit relatively short movements within a maximum range (≈ 12 km), but as a territorial species most of the time it was recorded by the two receivers, close to the Iron Gate dam and location where it was caught. The longest displacement from the preferable place under Iron Gate II dam was migration to Romanian ship lock and turbines located in the right arm of the Danube River. Location under the river dam is already recognized as a place of aggregation of the fish and thus preference of predatory catfish is strongly connected with food availability. Our data revealed that dam and ship lock blocked further migration of this fish. The last signal received was during the winter 2017, which was a period with extremely low temperature and ice cover on the Danube River. Considering the fact that the ice displaced whole receiver deployment downstream the dam, we might conclude that the tagged catfish disappeared because of ice movement during the winter season. Results can be used for management ensuring habitat requirements and developing of restoration and conservation strategies.

Spatial movement of the Wels catfish (*Silurus glanis*) in the Danube

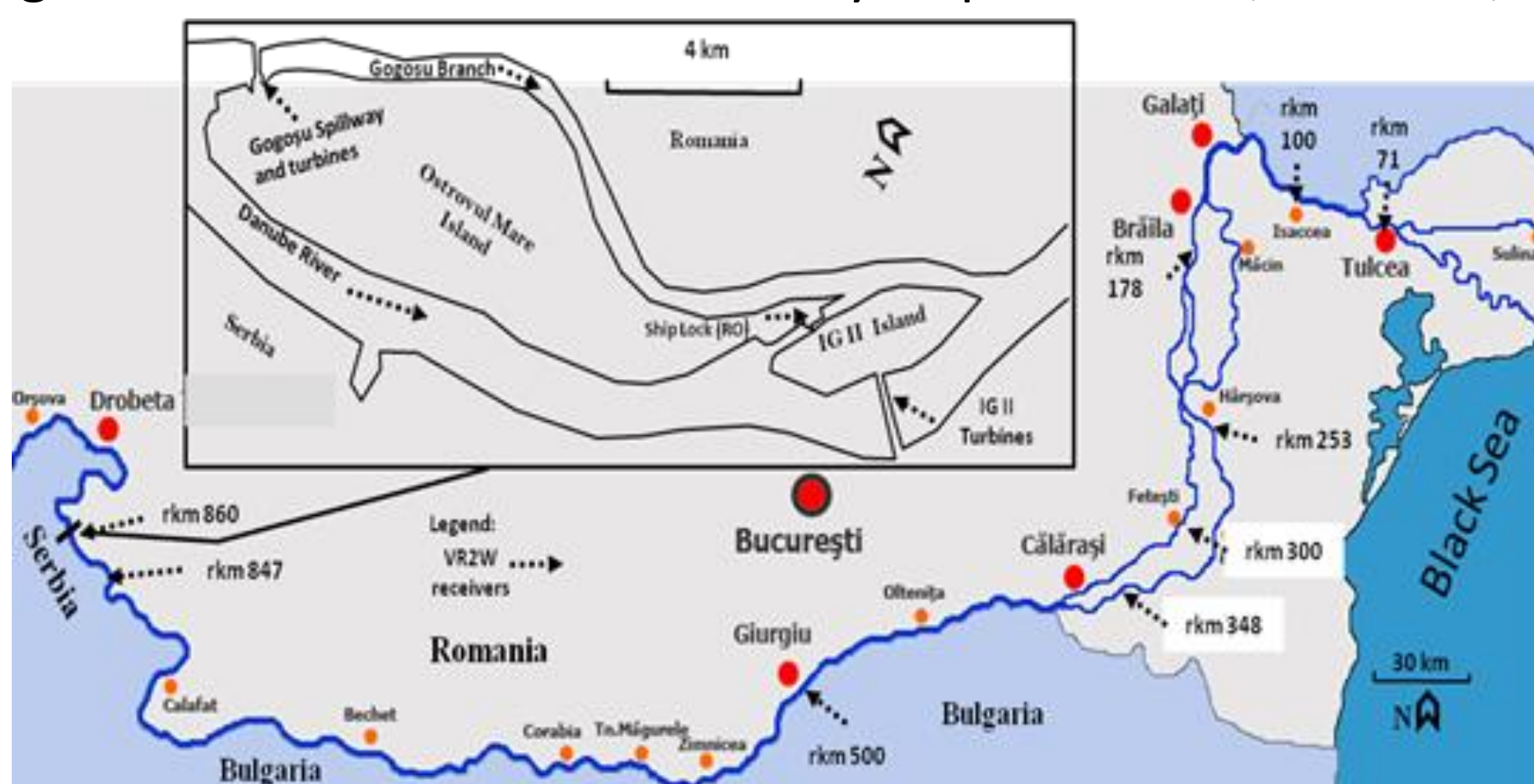
Smederevac-Lalić Marija¹,

Lenhardt M.^{1,2}, Spasić S.¹, Hont S.³, Paraschiv M.³, Iani M.³, Nichersu I.³, Trifanov C.³, Nikčević M.¹, Klimley P.⁴, Suci R.³

Introduction

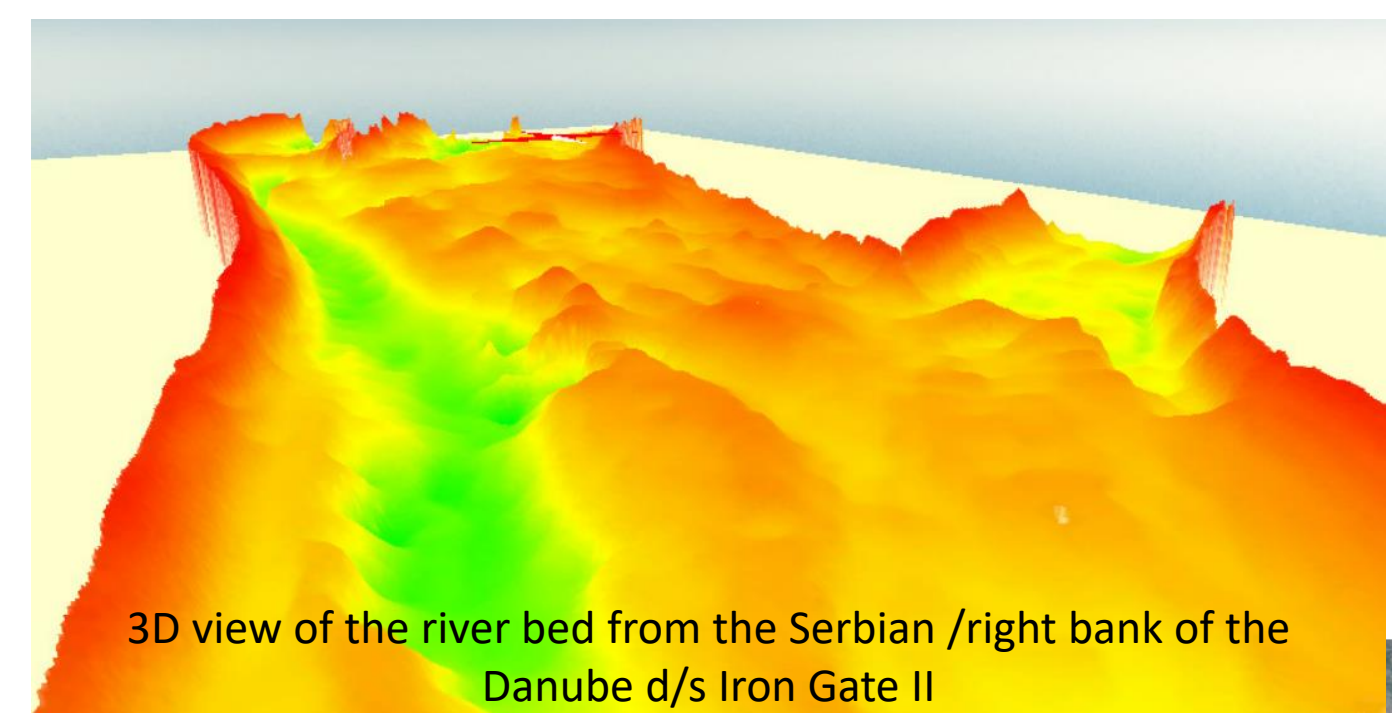
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Wels catfish was caught downstream of Iron Gate II hydropower dam, 863 rkm, close to spill gates on the Serbian side of the Danube.



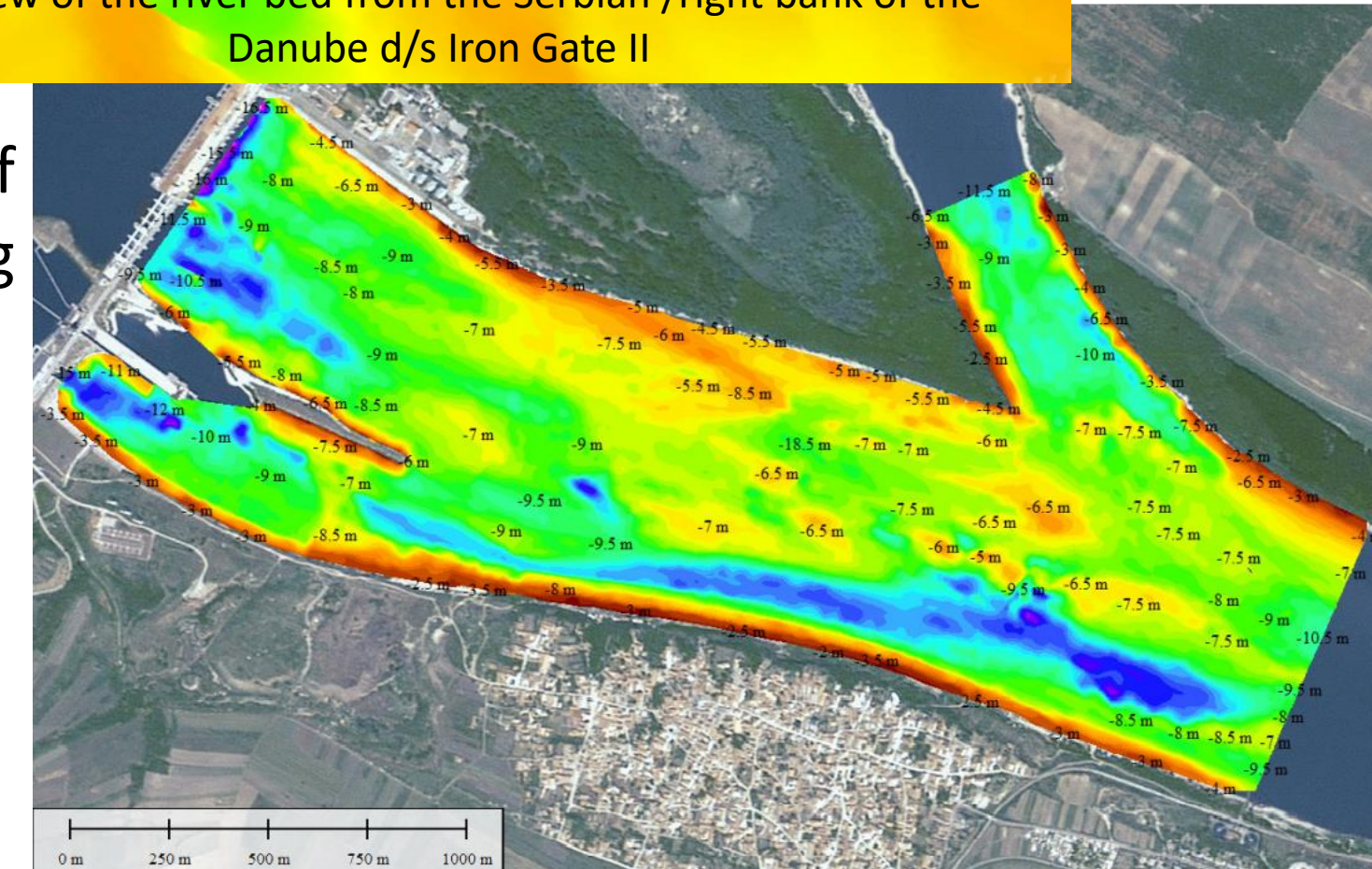
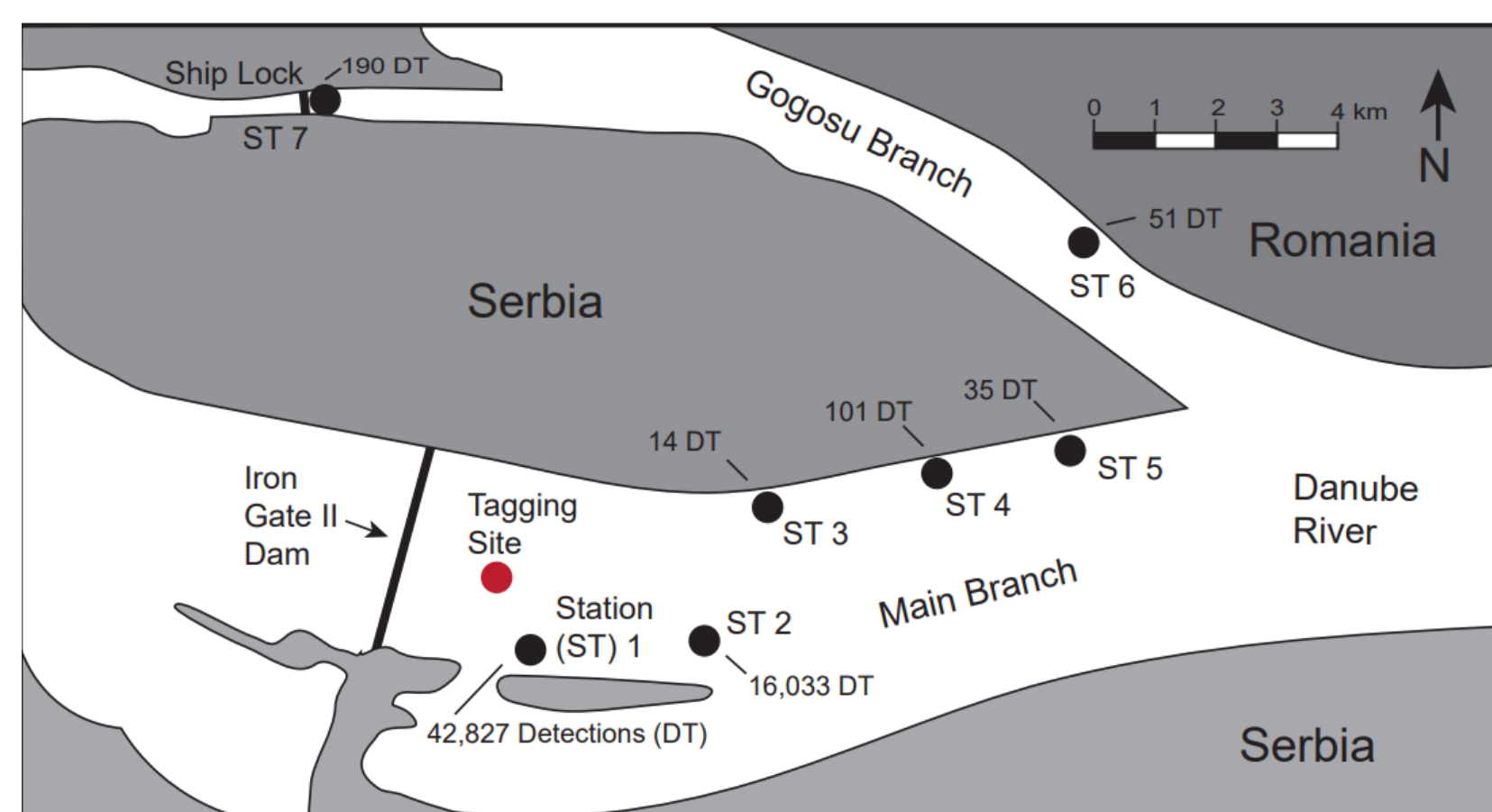
Material and methods

We combined data from general bathymetric mapping of the Danube River sector downstream of Iron Gate II hydropower dam and data received from implanted ultrasonic transmitter in the catfish (Vemco Ltd, V16TP) equipped with depth and temperature sensors. Nine autonomous receivers (Vemco Ltd, VR 2W) recorded detections of spatial movement downstream of Iron Gate II dam between Serbia and Romania for almost two years, between years 2015 and 2017.



Results

The location where the catfish was captured was a deep hole ca. 500 meters downstream of the dam in water > 9 m. This hole was a continuation of a deep channel extending northeastward from the dam.



Bathymetric map of the Danube downstream of Iron Gate II dam with water depth values (Final report, 2016)

During almost two years of survey, 59,355 and 59,175 detections of the catfish depth and temperature were recorded, respectively. The catfish exhibited high site fidelity, with the highest number of signals recorded on receiver ST1, closest to the location of capture, followed by signals recorded on ST2. River section near hydropower plant created good conditions for catfish with resting place and high food availability, due to the depth and fish killed by turbines. Bathymetry maps could indicate that giant European catfish change its habitat probably with memorizing configuration of investigated sector. This work demonstrates the importance of acoustic transmitters for monitoring and indicates that the upstream migration is blocked by the dam, and may in the future lead to actions to provide fish passage throughout the Danube watershed.

Acknowledgements

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