

Preparing FAIRway 2 works in the Rhine-Danube corridor

MINUTES (final)

Stakeholders' Forum Meeting 04 (SHFM04)

Date 04.04.2023

Time 09:30-11:30

Place Online (*GoTo Meeting*)

Participants

- Chair: Georg Rast
- Project Partners
 - o MMPI (HR)
 - o MGSI - Directorate for Inland Waterways (RS)
 - o viadonau (AT)
- Experts from the awarded consortium responsible for monitoring activities
- Danube Commission
- Sava Commission
- WWF Adria
- WWF Austria
- Environmental Agency Austria
- Austrian MAB National Committee for UNESCO
- Faculty of Civil Engineering Zagreb

For the minutes Iris Marstaller, Lidija Hubalek, Georg Rast

The presentations were sent out to the Stakeholders' Forum members/observers/project team on 5.4.2023, and are available for download on the [Stakeholders' Forum website](#).

Welcome note

Introduction of the Agenda and information about personal changes in the Serbian project team. Ivan Mitrovic left the Ministry of Transport, his successor is Ljubisa Mihajlovic. Georg Rast (subcontracted by the project coordinator) chaired this meeting after the consent by participants.

Organisational issues as well as basic principles of the GoToMeeting tool, methods of asking for the floor, logging in by name and organisation, usage of the chat box, camera, microphone and hand raising function were introduced.

Overview of FAIRway projects (*Lucia Karpatyova, viadonau*)

Overview of the four different FAIRway projects. Prior to this meeting, questions arose as to which measure belonged to which project. All interrelations can be found in the enclosed presentation [FAIRway "family" projects in comparison](#).

Monitoring of the common Croatian/Serbian Danube section (*Croatia: Lidija Hubalek, MMPI & awarded consortium*)

Activities carried out since last SHFM meeting

Brief review of the last 1,5 years of tender procedure of the monitoring activity. The first tender was annulled, then a second tender procedure has been started.

The award was granted to a consortium (contracted consortium [OIKON d.o.o.](#), [Hidroing d.o.o.](#), [VPB d.d.](#) with subcontractors [Croatian Society for Bird and Nature Protection](#)(CSBNP) and [IDT](#)), contract signature on 18 January 2023.

Presentation of the consortium contracted to carry out the monitoring activities

More information can be found in the enclosed presentation or publicly available [on the Stakeholders Forum Website](#).

Oikon is the consortium coordinator.

Work is clustered in three thematic pillars/bundles:

1. Monitoring of Parameters important for waterway maintenance → by Hidroing and VPB
2. Biodiversity inventory → by Oikon and CSBNP
3. Establishment of a Geoinformation System (GIS) → by Oikon

A timetable showing all planned field trips can be found at the end of the presentation (p.20).

1. Monitoring

1.1 Inventarisation of river regulation infrastructure

Area to be surveyed is a ca. 140 river-km long river section on both sides of the Danube (HR and RS). The field work will be carried out on water.

1.2. Riverbed measurement of cross sections of Danube river

1.3. Monitoring and analysis of flow, velocity and sediment transport

The 3 defined locations are up-stream (Danube river entering investigated section), mid-stream and on down-stream end. The different mid-stream location for sediment measurement was selected, because of confluence with Drava river, an important tributary of the Danube river. The analysis of the sediment transport will be performed before and after the confluence.

1.3 Piezometer installation

Locations evenly divided between up-stream, mid-stream and down-stream section.

The piezometers will be installed on publicly owned land. All locations were already equipped with video surveillance, this reduces the likelihood of theft or vandalism.

Discussion

Q: Georg Rast: Will mixed samples be used to analyse the suspended elements?

A: Igor Tadić: Measurements of suspended sediments as mixed samples, samples will be taken through points along the vertical of the riverbed. Later on, numeric analysis of the measurements shall be elaborated.

A: Gordon Gilja: Several different studies have been carried out already, the calibrating procedure is known. It was used e.g. in the Danube sediment project. Measurement methods with the use of ADCP are also applied, reference was made to a German guidance.

Q: Alexander Zinke: What is the benefit of measuring the groundwater temperature? Will the surface water temperature be measured as well?

A: Slaven Marasović: The sound travels differently at different temperatures as the density of water changes. In order to have comparable data, it is therefore necessary to consider the water temperature as well. Yes, surface water temperature will be measured as well.

Remark by Kerstin Böck in the Chat:

Maybe some of the results of following studies on sediment balance and transport and river training structures developed in the frame of the lifelineMDD project (for Mura-Drava-Danube area) are useful:

- https://www.interreg-danube.eu/uploads/media/approved_project_output/0001/54/69b23ef020a89f970bb5bee42be8261c6b4b4661.pdf
- https://www.interreg-danube.eu/uploads/media/approved_project_output/0001/54/31c2ce910019391e90486801ac7e8d784815ca77.pdf

2. Biodiversity inventory

2.1 Fish fauna inventory

Oikon has lot of experience in fish monitoring. The links to the standards applied can be found in the presentation (p.14). As standardized methods are used, the comparability of data is given.

2.2 Habitat inventory

Field survey will be conducted between May and October, thereafter the final habitat map will be produced. (see as well p.20 with the overview of field surveys)

2.3. Bird fauna inventory

Monthly survey of migratory birds (Bank to bank).

2.4. river benthic habitat survey

Standard methodology approach used, the link can be found in the presentation (p.18).

Discussion

Q: Daniel Trauner: The sampling campaign will last over one year. When can we expect the first results?

A: Polona Čufer Klep: At the end of presentation a timeplan of field surveys can be found. Data will be available at different times, depending on the timeplan of each activity. All reports will be in English.

A: Lidija Hubalek: Information will be continuously communicated to the SHF. A few SHF meetings will be organised in 2023 during which the available results will be presented, and relevant (ad-hoc) information will be sent out via email.

Q: Kerstin Böck: Monitoring was delayed, the project duration of "Preparing FAIRway 2" is planned to be prolonged. Will the content of the monitoring be reduced? How is the timeline working, if the data need to be integrated in the modelling and Multi-Criteria Analysis?

A: Lidija Hubalek: After the annulation of the first tendering, a market research was conducted and some activities were reduced. The duration of the monitoring activities is 18 months.

A: Ljubisa Mihajlovic: The part of the question regarding modelling activities will be answered in the presentation of modelling.

Q: Kerstin Böck: Can you give an overview of which parts were reduced in the second tender (comparing to the first one)?

A: Lidija Hubalek (update based on the clarification questions of WWF Austria on the meeting minutes): Initially planned was the monitoring of the whole common stretch, now only critical sections will be

monitored, which is around 80 km in total of 17 currently defined critical sections (bottlenecks). Bottlenecks represent around 60% of the common CRO-SRB section of the Danube. All currently known critical section (bottlenecks) are and will be covered by the monitoring activities carried out in the project. No critical parts of the monitoring plan content wise were cut. The overview of locations as defined in the 1st round and 2nd round of tendering procedure is provided in the annexes to this minutes.

Q: Kerstin Böck (after the meeting): Will no measures be implemented on the location where monitoring is not going to be carried out?

A: Lidija Hubalek (after the meeting): Internally we had a lot of discussion. Common CRO-SRB sector is known to our experts. No surprises regarding new bottlenecks are expected in the near future. The critical locations are already each few kilometres long and only expected thing is that they can move a bit up or down stream. In the past years we have positive development as few bottlenecks are no longer critical. We expect that during the upcoming modelling of the common Danube section these results will also be confirmed and become official.

3. Establishment of a geoinformation system

Main task is to categorise and structure a clear database. The works already started with purchase of the necessary server equipment.

Discussion

Q: Georg Rast: Did you test possible challenges with transfer of data?

A: Branimir Radun: Lot of monitoring data is internal in Oikon. Oikon is experienced with transfer of large data. In the scope of this project, the transfer of a small amount of data was already performed successfully.

Implementation plan for carrying out the monitoring activities - status quo, activities, schedule and open issues

Overview of all planned field surveys on page 20 of the presentation.

If questions arise regarding the timeplan, all are invited to contact Polona Čufer Klep.

Some challenges in obtaining permits were faced, because of the Serbian Nature protection law. To obtain the needed permit, a Serbian company has to be involved in the monitoring, and negotiations have been initiated with the Serbian University Institute, experienced in carrying out monitoring.

It is expected that all necessary permits will be obtained by the end of April 2023.

Modelling & Multi-Criteria Analysis of the common Danube section (Serbia: Ljubisa Mihajlovic, MGSI)

More information can be found in the enclosed presentation or publicly available [on the Stakeholders Forum Website](#).

In 2014, Croatia and Serbia jointly identified critical sections for navigation on the common Danube stretch. As the Danube is a dynamic system, some of the sites identified at that time may no longer be critical. Within the scope of this Activity, the navigational bottlenecks will be analysed and reassigned by taking morphological changes in the riverbed into account.

All steps, outcomes and alternative solutions will be discussed and agreed within the Stakeholders Forum.

Due to time constraints because of the delays of the procurement, only the most important/likely options will be part of the 2D modelling. Nevertheless, the aim is to summarise all procedures and analyses, environmental aspects will be integrated.

The procurement is delayed due to the need to amend of the finance contract between the Republic of Serbia and the European Investment Bank (EIB) – which entered into force in Mar 2022 – under which modelling activities will be financed. In addition, the co-financing requires additional procedures and “non-objection” statements by the EIB on all major steps of the procurement process (e.g. to Terms of Reference, shortlisted bidders, etc.), which adds another layer of complexity and potential delays, but also ensures a high level of compliance with the EU public procurement legislation. Recently, the procurement process was temporarily suspended due to personnel changes in the Serbian government, and the Beneficiary’s team; new team took over in Jan 2023. The clarifications (EIB & Serbian beneficiary) to the short-listed bidders are ongoing. The EIB non-objection to the shortlisted bidders is expected by mid-April.

Due to the delay, the contract length will now be 12 months (initially planned for 18 months). Until the contract signature, as many things as possible will be prepared together with the Croatian colleagues, so that the modelling activities can be performed as soon as possible.

It was highlighted, that the delay of the modelling procurement has no influence on the timeplan of the monitoring activities.

Within the planned Stakeholder Forum in November 2023, the first discussions of the monitoring activities and first outcomes can take place.

The Serbian River training and dredging works project of 2017-2022 was presented. A similar procedure regarding the Modelling will be used. A stakeholder forum was also set up as part of the project, so relevant experiences are already available.

Discussion

Q: Kerstin Böck: Will the Monitoring results be used for the Modelling activities?

A: Ljubisa Mihajlovic: Yes. All data from the monitoring activity will be used in some way in the modelling activity.

Q: Kerstin Böck: Is the timeline aligned between Modelling and Monitoring?

A: Ljubisa Mihajlovic: Yes. The planned start of the Modelling activities is in September, first results of monitoring are available from mid-2023 onwards.

Q: Kerstin Böck: The presented project of river training was conducted within a CEF-funded Fairway project?

A: Ljubisa Mihajlovic: No. It was integrated in another national project. 6 locations along the Serbian Danube were modelled.

Next steps & next meetings

If some in-between information is available, the Stakeholders' Forum will be informed via email or an AdHoc meeting will be scheduled.

SHFM 05

Date: 07.06.2023
 Time: 9:30–12:00 CEST
 Focus: monitoring activities (outcomes available until the meeting)
 Venue: online meeting

SHFM 06

Date: 26.-27.09.2023
 Focus: monitoring activities (outcomes available until the meeting) & modelling activities (introduction of contracted experts, planning)
 Venue: Croatia (physical meeting)

SHFM 07

Date: November 2023
 Focus: monitoring activities (outcomes available until the meeting) & modelling activities (preparations for multi-criteria analysis – criteria, procedure in general, not based on the modelling outputs)
 Venue: tbc (optional as a physical meeting in Serbia)

Calendar entries to block the dates for the SHFM 05+06 were sent out by Lucia Karpatyova on 05.04.2023.

AoB

Georg Rast encouraged all members and observers of the SHF to make proposals for Agenda points for the next meetings. Any project, study, topic, etc. that may be of interest to SHF may be presented.

A sediment study presentation was scheduled for this meeting, but nobody was available. Kerstin Böck will ask her former colleagues at University of Natural Resources and Life Sciences, Vienna, if they are available for one of the next meetings.

Tibor Mikuska mentioned a study on the floodplains in the Kopacki Rit nature park. It was a study of 2 years and will be finished by December 2023. The study is led by Croatian waters. Tibor will contact the chair on when a presentation can be arranged.

Upcoming Meetings

Meeting	date	time	place
Stakeholder Forum Meeting 05	07.06.2023	9:30–12:00 CEST	Online
Stakeholder Forum Meeting 06	26.-27.09.2023	2 days reserved	Croatia (planned Vukovar)
Stakeholder Forum Meeting 07	November 2023	tbd	tbc

Attachments

- Monitoring:
 - Locations from 1st Tender (Tender_1.pdf)
 - Locations from 2nd Tender (Tender_2.pdf)
 - Overview of critical locations (Critical locations.pdf)
- List of participants (separate)
- Presentations (separate)

	REPUBLIKA HRVATSKA Ministarstvo mora, prometa i infrastrukture	Ev. broj nabave: 35-21
	Dokumentacija o nabavi	Stranica 45 od 80

3.2.3 Inventarizacija sastavnica bioraznolikosti

Budući izvršitelj na osnovu provedene inventarizacije sastavnica bioraznolikosti (ribe, staništa, ptice te riječnih bentosa) treba izraditi Katalog predmetnih sastavnica. Katalog je potrebno izraditi sukladno definiranom u poglavlju 3.3.

3.2.3.1 Inventarizacija riba

Ihtiofauna na predmetnom području sastoji se od preko 65 vrsta, među kojima su mnoge ugrožene i zaštićene direktivama EU. Potrebno je izraditi studiju praćenja riba, pri čemu je potrebno utvrditi:

- populacije riba na zajedničkom hrvatsko-srpskom sektoru rijeke Dunav (uključujući, populacijske parametre kao biomasu, dobne razrede, brojnost);
- točna mjesta i njihova poplavna područja koja određene vrste slatkovodnih riba koriste za mrijest, sklonište i zimovanje s naglaskom na ciljne vrste područja ekološke mreže, na vrste s Priloga II, IV i V Direktive o staništima i Crvene knjige slatkovodnih riba Hrvatske u kategorijama CR, EN, VU i DD te strane vrste slatkovodnih riba.

Opseg područja monitoringa dan je na slikama od 3. – 13. Unutar granica predmetnog područja trebaju biti izvršeni monitorinzi i uzorkovanja potencijalnih mjesta za mrijest, sklonište i zimovanje riba najmanje jednom u odgovarajućoj sezoni (tijekom mriještenja, tijekom ljeta i tijekom zime). Tijekom monitoringa ribe pozornost bi trebala biti usmjerena na monitoring invazivnih vrsta riba. Prema saznanjima dobivenih od posljednjih monitoringa riba, njihova staništa su uz obaloutrde te T-pera.



Slika 3: rkm 1433 -1423



Slika 4: rkm 1423 - 1413



Slika 5: rkm 1413 – 1403



Slika 6: rkm 1403 - 1393



Slika 7: rkm 1393 - 1383



Slika 8: rkm 1383 - 1366



Slika 9: rkm 1366 - 1351



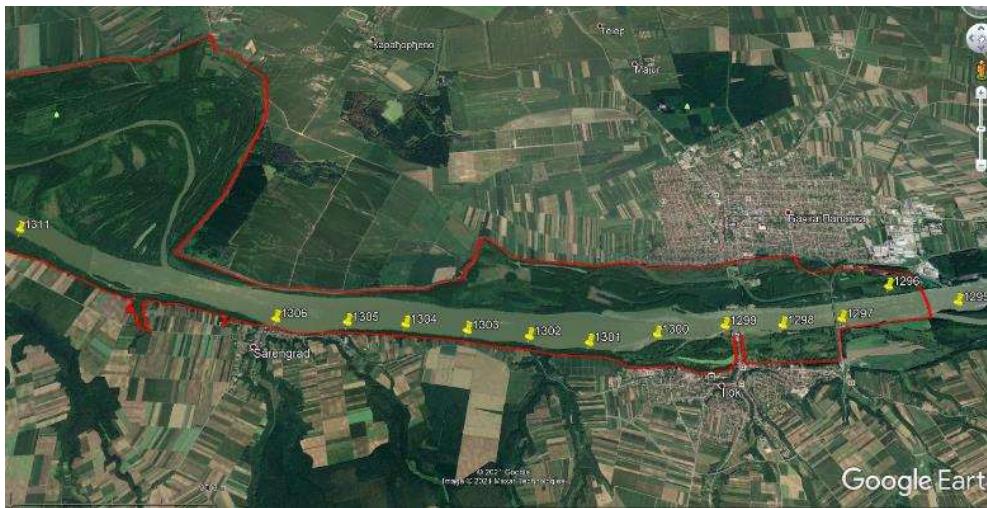
Slika 10: rkm 1351 – 1339



Slika 11: rkm 1339 - 1325



Slika 12: rkm 1325 -1313



Slika 13: rkm 1313 - 1295

Prilikom inventarizacije slatkovodnih riba na Dunavu, potrebno je primijeniti sljedeće metode uzorkovanja:

- elektroribolov;
- elektrificiranu pridnenu povlačnu mrežu (elektrificirana dredža).

Kombinacijom navedenih metoda mogu se dobiti reprezentativni podaci o rasprostranjenosti i relativnoj učestalosti pojedine vrste na zajedničkom hrvatsko-srpskom sektoru rijeke Dunav. Budući izvršitelj mora ishoditi sve suglasnosti, dozvole i dopuštenja za snimanja, mjerena, analize, monitoringe, istraživanja i radove od nadležnih institucija u obje države.

3.2.3.1.1 Elektroribolov

Najčešće korištena i najučinkovitija metoda za lov slatkovodnih riba. Koristi se za lov slatkovodnih riba u plićim vodnim tijelima (potoci, kanali, manje i plitke rijeke, plitka jezera) te u obalnoj zoni velikih i dubokih rijeka, na dubinama do oko 2 m. Prilikom uzorkovanja slatkovodnih riba elektrorobolovnim uređajem potrebno je koristiti standardnu metodologiju elektroribolova prema HRN EN 14962:2007 Kvaliteta vode – Smjernice za područje primjene i odabir metoda uzorkovanja riba i HRN EN 14011:2003 Kakvoća vode – Uzorkovanje riba električnom strujom.

Opis metodologije

Elektroribolov se provodi iz čamca, a smjer i brzina kretanja ovisi o staništu i brzini protoka vode. U slučaju uzorkovanja strukturirane obalne zone sa specifičnim staništima, primjerice rip-rap zona ili korijenje obalne vegetacije, čamac se kreće uzvodno, a u ostalim slučajevima elektroribolov se provodi u smjeru toka vode. Brzina kretanja čamca mora biti malo veća od brzine protoka vode kako bi se stvorilo učinkovito električno polje koje dovodi do elektrotaksije kod riba (Bammer i sur., 2015.). Za provođenje elektroribolova koristi se čamac za elektroribolov s četiri ili više anoda međusobno udaljenih 50 cm, smještenih na konstrukciji montiranoj na čamcu prilagođenom za elektroribolov uz najmanje dvije neelektrificirane mreže za sakupljanje riba, a za prikupljanje jedinki s teže

	REPUBLIKA HRVATSKA Ministarstvo mora, prometa i infrastrukture	Ev. broj nabave: 229-22
	Dokumentacija o nabavi	Stranica 46 od 82



Slika 3: Lokacija Batina



Slika 4: Lokacija Siga-Kazuk



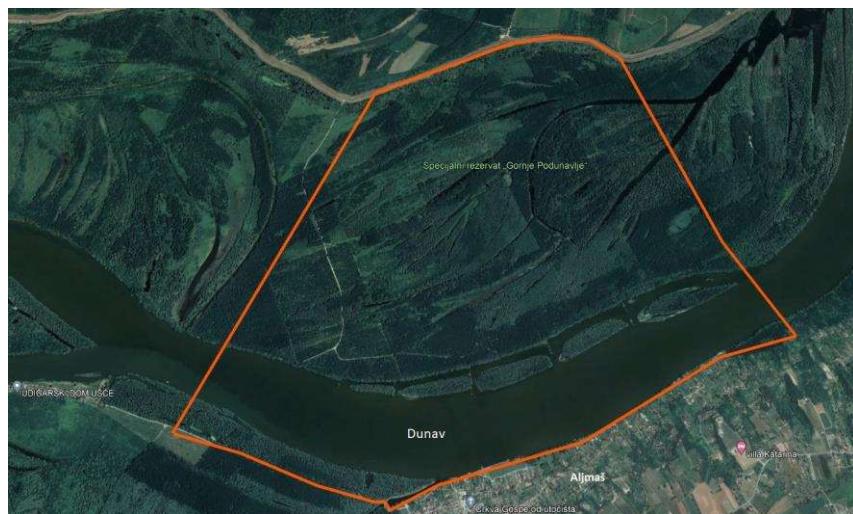
Slika 5: Lokacija Apatin



Slika 6: Lokacija Židovski rukavac



Slika 7: Lokacija ušće Drave



Slika 8: Lokacija Aljmaš



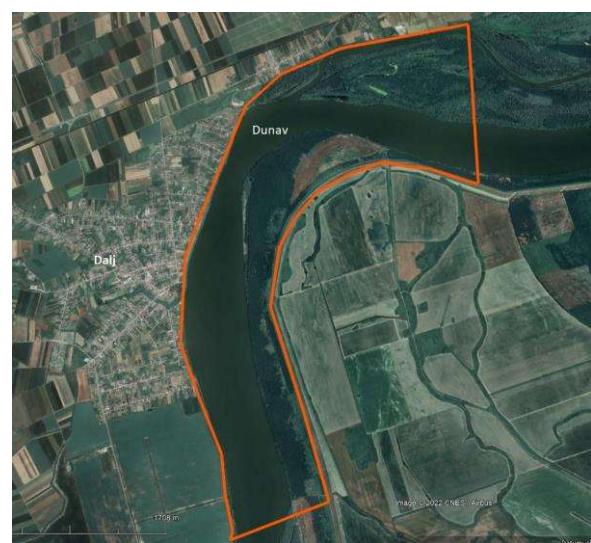
Slika 9: Lokacija Staklar



Slika 10: Lokacija Erdut



Slika 11: Lokacija Bogojevo



Slika 12: Lokacija Dalj



Slika 13: Lokacija Borovo I



Slika 14: Lokacija Borovo II



Slika 15: Lokacija Vukovar



Slika 16: Lokacija Sotin



Slika 17: Lokacija Opatovac



Slika 18: Lokacija Mohovo



Slika 19: Lokacija Ilok/Bačka Palanka

Prilikom inventarizacije slatkovodnih riba na Dunavu, potrebno je primijeniti sljedeće metode uzorkovanja:

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Kritične dionice

U sljedećoj tablici prikazan je popis potencijalnih kritičnih dioinica s njihovim položajem:

Br.	Ime kritične dionice	Desna obala/ lijeva obala	Karakteristike kritične lokacije	Od RKM-a	Do RKM-a
1	Batina/Bezdan	HR/RS	smanjena širina plovnog puta na NPV-u	1429,00	1425,00
2	Siga-Kazuk	HR/RS	smanjena širina plovnog puta na NPV-u	1424,20	1414,40
3	Apatin	HR/RS	smanjena dubina, smanjena širina plovnog puta na NPV-u, erozija obale	1408,20	1400,00
4	Židovski/Čivutski rukavac	HR/RS	smanjena dubina, smanjena širina plovnog puta na NPV-u, erozija obale	1397,20	1389,00
5	Ušće Drave	HR/RS	smanjena širina plovnog puta na NPV-u	1383,40	1381,60
6	Aljmaš	HR/RS	smanjena širina plovnog puta na NPV-u	1381,40	1378,20
7	Staklar	HR/RS	smanjena dubina, smanjena širina plovnog puta na NPV-u, erozija obale	1376,80	1373,40
8	Erdut	HR/RS	smanjena širina plovnog puta na NPV-u	1371,40	1366,40
9	Bogojevo	HR/RS	smanjena širina plovnog puta na NPV-u	1366,20	1361,40
10	Dalj	HR/RS	smanjena širina plovnog puta na NPV-u	1357,00	1351,00
11	Borovo 1	HR/RS	smanjena dubina, smanjena širina plovnog puta na NPV-u, erozija obale	1348,40	1343,60
12	Borovo 2	HR/RS	smanjena širina plovnog puta na NPV-u	1340,60	1338,00
13	Vukovar	HR/RS	smanjena dubina, smanjena širina plovnog puta na NPV-u, erozija	1332,00	1325,00
14	Sotin	HR/RS	smanjena dubina, smanjena širina plovnog puta na NPV-u, erozija	1324,00	1320,00
15	Opatovac	HR/RS	smanjena širina plovnog puta na NPV-u	1315,40	1314,60
16	Mohovo	HR/RS	smanjena dubina, smanjena širina plovnog puta na NPV-u, podvodno	1311,40	1307,60
17	Ilok/Bačka Palanka	HR/RS	smanjena širina plovnog puta na NPV-u	1302,00	1300,00

Tablica: Kritične dionice na zajedničkom hrvatsko-srpskom dijelu rijeke Dunav, od riječnog rkm 1433,1 do rkm 1295,5 s rasponom RKM-a i opisom



Slika 1: Karta potencijalnih kritičnih dionica na zajedničkom hrvatsko-srpskom dijelu rijeke Dunav