Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries:

NATIONAL ACTION PLANS

UPDATE OCTOBER 2016

Developed within the **EU co-financed project FAIRway**

Co-financed by the European Union
Connecting Europe Facility

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1 Executive summary

These action plans illustrate the status and planned next steps for rehabilitation and maintenance activities in the Danube riparian countries. It is based on the Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries as it was endorsed by a large majority of the Danube Transport Ministers in December 2014. By means of the action plans at hand, the **implementation status of the Master Plan shall be monitored**. Continuous updates are foreseen to provide the necessary information. This document provides the altogether fourth update of the Master Plan and comprises an overview of the fairway situation during the first three quarters of 2016 for the countries that take part in the project FAIRway Danube as well as Serbia on voluntary basis. Furthermore, taken and planned measures as well as the resulting budget needs and potential financing gaps 2017 are illustrated. This document also includes information of the ecological status of the Danube and the relevant aspects, e.g. legal permits, related to maintenance and rehabilitation measures. For the Danube riparian countries that are not partners within FAIRway Danube (Germany, Serbia, Bosnia and Herzegovina, Moldova and Ukraine) data will be provided in the next edition of the Action Plans in May 2017.

According to the Danube River Basin Management Plan 2015 by the International Commission for Protection of the Danube River (ICPDR), the **majority of the Danube is classified as heavily modified water body with moderate or worse ecological potential.** In order to achieve good ecological potential and status (natural water bodies) as required by the Water Framework Directive, **an integrated planning approach is applied in the Danube countries** as regards navigational maintenance and rehabilitation measures.

Fairway conditions were comparably good in the first three quarters of 2016. After January, which showed fairway depths below 2.5m on most critical sections as a continuation of the bad winter in 2015, minimum fairway depths were exceeded along the Danube due to good hydrological conditions. In September though, water levels dropped drastically on the Lower Danube and 2.5m fairway depth could no longer be reached on many critical sections. According to reports from the sector, October was a critical month as well.

The FAIRway partners came up with their operational budget needs for 2017. As **budget negotiations are still ongoing** in most countries, the operational budget needs are not secured yet (HU, HR, RO, BG).

Considerable investments have been initiated in the last years since launching the Master Plan. The amount varies, but **at least a third of the national needs** declared in 2014 have been satisfied in most of the FAIRway Danube countries. Most of the available investment budget is based on EU co-financing.

Overall budget sums for the Danube region are not provided. Not all Danube Fairway Master Plan counties participate in the FAIRway Danube project and thus, not all budget data is available.

2 Introduction

Purpose of action plans

In their conclusions of 3rd December 2014 regarding the Fairway Rehabilitation and Maintenance Master Plan for the Danube and its Navigable Tributaries, a large majority of the Danube Transport Ministers agreed to "take the necessary measures (...) to deal within the framework of fairway maintenance with the critical fairway sections identified in the Master Plan, to establish for this purpose national roadmaps which identify individual actions, responsibilities, funding resources and intermediate milestones for the implementation of these measures and to communicate these roadmaps by 30th June 2015 to the relevant coordinating bodies". This is in line with Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network, obliging EU Member States to preserve a good navigation status, while respecting the applicable environmental law. In the Danube Region the "Joint Statement on Guiding Principles for the Development of Inland Navigation and Environmental Protection in the Danube Basin", endorsed in 2007 by the ICPDR (International Commission for the Protection of the Danube River), Danube Commission and the International Sava River Basin Commission (ISRBC), thereby is a key tool providing guidance for the planning and implementation of waterway projects.

In general, the national action plans at hand **create a high level of transparency** which was not available in the years before. Detailed information on operational rehabilitation and maintenance activities are presented. The Master Plan and the corresponding FAIRway action plans have therefore opened the black box of previously nationally oriented waterway management approaches for all involved stakeholders. **Transparent illustration of planned and implemented measures** allows coordinated action on national as well as corridor level. **Cost and budget information** allows evaluating efficiency and improving the capability to act on the long run.

The basic maintenance philosophy applied throughout the Master Plan is an important step towards **implementing the most effective, environmentally sound and cost-efficient measures possible.** Improved monitoring/surveying activities create the needed high quality data basis to identify the best measures including **exploiting the potential of fairway realignment** to the maximum extend where possible and reduce dredging interventions as much as possible and purposeful.

Scope of action plans

Based on the ministerial conclusions of December 2014, Priority Area 1a of the EU Strategy for the Danube Region initiated the elaboration of national action plans in spring 2015. They follow a harmonized structure in order to provide an improved overview of actions taken and planned along the Danube.

The action plans shall be updated continuously in order to serve as a proper monitoring and documentation tool as regards planning of budget and activities. Contents for these updates will be provided in the framework of the CEF-financed FAIRway project which requires a biannual

update (October and May) for additional steering purposes for the countries that are project partners (Austria, Slovakia, Hungary, Croatia, Romania, Bulgaria). The remaining Danube riparian countries are integrated via PA1a – Inland Waterways of the European Strategy for the Danube Region and will be asked to contribute data once a year (May). In the **October update**, building on the status report as regards critical locations, hydrological conditions and rehabilitation and maintenance activities undertaken in the course of the year, the focus is laid on the **resulting budget needs** and – if already available – information on **the allocated budget for the coming calendar year.** This shall support effective planning of activities and financing.

The **May update** shall provide a possibility to finetune the budget and activity planning for the ongoing year. Furthermore, data on the **status of critical locations, hydrological conditions and implemented measures for the full preceeding year** will be provided.

The **summarising tables on cost and budget** in this report allow only limited comparison between the riparian states, as the national accounting practices vary (e.g. some countries summarize more activities under "maintenance and rehabilitation" than others). The main purpose is to **illustrate the cost and budget development over the years per country, to indicate financing needs and to outline the shares of national and European funding**.

The Master Plan and the action plans are designed as living documents. This means that their structure and content will be elaborated in order to provide the highest benefit for the maintenance and rehabilitation process of the Danube and its navigable tributaries. The aim is to standardize and simplify the data gathering process as much as possible, the use of electronic support tools is envisaged.

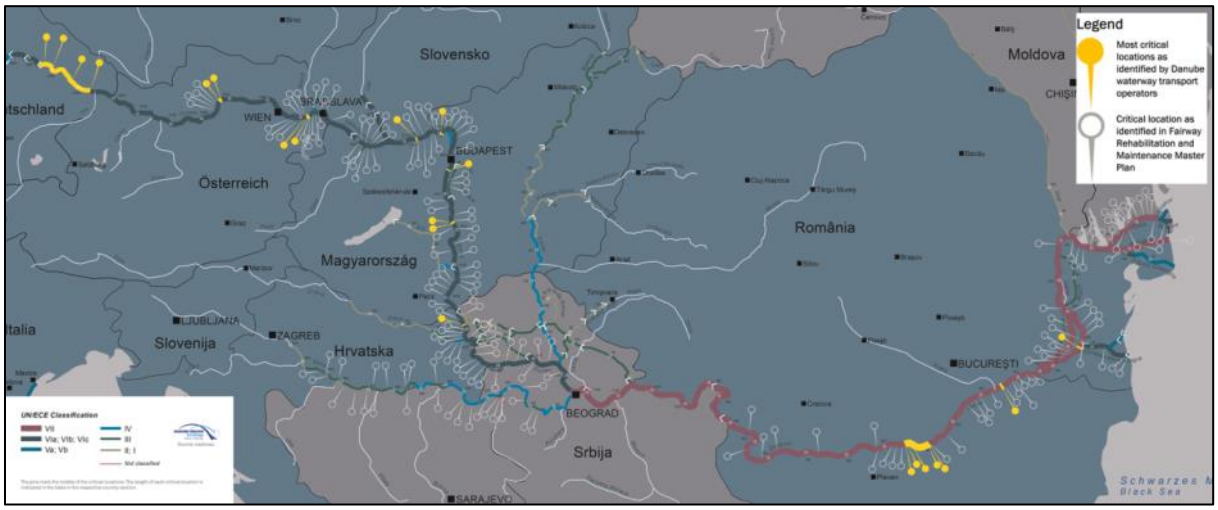
Scope of current report

This document updates the third National Action Plan of May 2016 for the Fairway Rehabilitation and Maintenance Master Plan for the Danube and its Navigable Tributaries. It is the third Action Plan to be elaborated within the FAIRway project.

It focuses on the most critical sections as identified by a sample of 24 important shipping organisations and waterway administrations in December 2014. From the user perspective, the locations and stretches marked yellow in the map and listed in the table below cause the biggest navigational problems and should consequently be treated with the highest priority. For reporting purposes, some of the locations have been grouped in the country chapters.

In some country chapters, a number of critical sections has been added to the ones selected by the shipping organisations. This was the case, if the responsible waterway administrations considered it necessary to additionally report on the status of these locations due to their critical state.

As a general remark, it has to be stated that the exact situation of the critical sections varies over the years due to the intense dynamics of the river.



location and length (km)			right bank / left bank	name of sector or location
river-km (from - to)		length		
2,321.70	2,312.00	9,50	DE / DE	Straubing (lock)–Straubing-Sand (port)
2,312.00	2,282.50	29,70	DE / DE	Straubing-Sand (port)–Deggendorf
2,282.50	2249,90	32,50	DE / DE	Deggendorf – Vilshofen (backwater Kachlet)
2,014.00	2,013.50	0,50	AT / AT	Weißenkirchen
2,010.20	2,008.90	1,30	AT / AT	Dürnstein
1,888.40	1,887.60	0,80	AT / AT	Treuschütt
1,884.70	1,883.50	1,20	AT / AT	Hainburg
1,735.50	1,733.70	1,80	HU / SK	Nyergesújfalu
1,698.00	1,697.00	1,00	HU / HU	Dömös
1,638.40	1,637.40	1,00	HU / HU	Budafok
1,559.80	1,559.70	0,10	HU / HU	Dunaföldvár
1,558.50	1,557.50	1,00	HU / HU	Solt
1,408.20	1,400.00	8,20	HR / RS	Apatin
309,00	308,00	1,00	RO / RO	Cochirleni
568,20	567,80	0,40	BG / RO	Milka Island
567,00	566,70	0,30	BG / RO	Belene Island
562,00	561,50	0,50	BG / RO	Coundur Island
541,60	541,00	0,60	BG / RO	Vardim Island
538,50	537,00	1,50	BG / RO	Giska Island
425,90	425,20	0,70	BG / RO	Kosui Island

Recommended Levels of Service

Notwithstanding the provisions of the TEN-T Regulation (1315/2013), the "European Agreement on Main Inland Waterways of International Importance" (AGN) and the "Recommendations on Minimum Requirements for Standard Fairway Parameters, Hydrotechnical and Other Improvements on the Danube" published by the Danube Commission, the waterway management experts represented in the project NEWADA duo[1] recommended different minimum Levels of Service for the different phases in the waterway maintenance cycle. The recommended minimum Level of Service related to fairway depth for the Danube and its navigable tributaries was thereby defined as **2.50 m at Low Navigable Water Level** (LNWL or ENR / Étiage navigable et de regularisation), i.e. on 94% (343 days) of the year, calculated on the basis of the discharge observed over a period of 30 years with the exception of ice periods. In some river sections however, e.g. in Germany[2], Slovakia and Hungary, this target is not valid, as it is not achievable by stream regulation and maintenance measures due to physical preconditions. This aspect remains valid throughout this document.

The recommended fairway widths for the minimum depth (both based on NEWADA duo) were defined in order to represent a **"deep fairway channel"** and comprise a range of values for different bend radii for a reference (i.e. the most common) vessel or convoy going downstream in one-way traffic. Higher fairway widths are needed in sharper bends of the waterway, as the drift angle of the respective vessel must be accounted for.

This "deep fairway channel" should be available already prior to low water periods to prevent obstacles to navigation already in advance. Once a fairway depth of 2.5m at LNWL (ENR) for this minimum fairway width (minimum LoS) has been established by dredging or realigning the course of the fairway, the recommended fairway widths shall be maintained in their entirety according to the 2013 Danube Commission Recommendations (Section 7.2.2. of the "Recommendations on Minimum Requirements for Standard Fairway Parameters, Hydrotechnical and Other Improvements on the Danube").

The targeted minimum widths of the fairway (NEWADA duo Level of Service 1) are provided below.

- 40 – 80 m in Austria (CEMT class VIb-VIc)
- 60 to 100 m in Slovakia and on the Slovakian – Hungarian border section (CEMT class VIb – VIc)
- 80 to 120 m in Hungary (CEMT class VIb – VIc)
- 80m in Croatia, Serbia, Romania and Bulgaria (including border sections, excluding the maritime Daube). No range for bend radii is defined, as there is usually no passing of vessels and convoys in bends in these sections. Reference vessels for Croatia: (3x2 or 2x3 barges; CEMT class VI C.) Reference vessels for Serbia (CEMT class VIc-VII); reference vessels for Romania and Bulgaria (CEMT class VII)

[1] http://www.newada-duo.eu/
[2] In addition, Germany was not a project partner in NEWADA duo and thus did not agree to the NEWADA duo Levels of Service. For the section Straubing-Vilshfoen, 2.0m are set as target value by the German waterway administration

The overall aim is to implement the recommended Levels of Service on the fairway with reduced physical interventions, which lowers costs as well as environmental impacts. The key precondition to achieve this aim is to establish an improved information basis on the actual status of the critical waterway locations. In order to be able to monitor the development of the “deep fairway channel” (minimum LoS), to decide on the optimum measures under the given circumstances and to provide the users of the waterway with the needed information on a regular basis, monitoring of fairway depths at critical locations has to take place at high frequency (at least once a month). Only such a high quality decision basis allows designing more effective and efficient measures. With the few exceptions mentioned above, this recommended Level of Service should normally be achievable with conventional maintenance measures (ranging from surveying, fairway marking/relocation to dredging), that is, without structural interventions on the infrastructure. Thus, the Master Plan lists measures and cost not only related to dredging, but also for related processes such as surveying or data analysis. Capital dredging – main structural interventions - is not addressed in general.

Multifunctional use of rivers

Apart from the impact of navigation laws on rehabilitation and maintenance activities, further legislation related to aspects like forest, fishery, flood risk and environment need to be taken into account. These Action Plans shall elaborate particularly on the environmental aspects of the measures taken.

Official notifications or permits are needed from the competent national authorities related to water law, nature protection law, and (in some countries) national park law in the context of waterway maintenance measures. The authorities responsible for issuing these environmental permits comply with the goals of the legal instruments of the European Union, such as the Water Framework Directive 2000/60/EC (WFD) or the Environmental Impact Assessment Directive (85/337/EEC) and the Habitats Directive (92/43/EEC) in connection with the Birds Directive (2009/147/EC) which form the NATURA 2000 network. Further relevant Directives may be the Strategic Environmental Impact Assessment Directive (2001/42/EC), the Flood Risk Management Directive (2007/60/EC) and the Public Participation Directive (2003/35/EC).

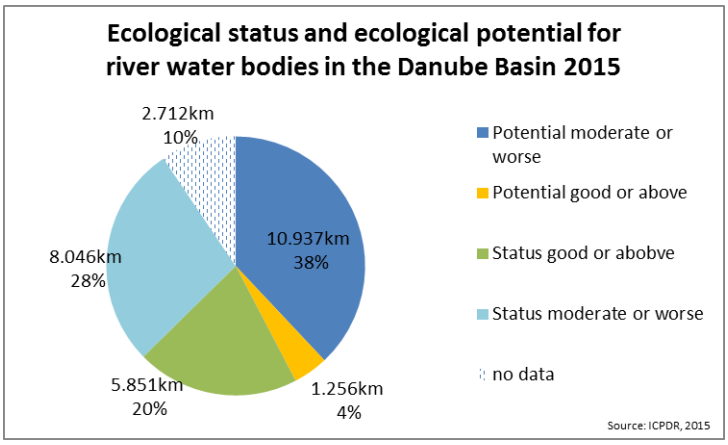
Implications of the Water Framework Directive

The **Water Framework Directive** requires Member States in Article 4.1(a) (i) to "implement the necessary measures to prevent deterioration of the status of all bodies of surface water". Another goal is to protect, enhance, (and restore) these water bodies in order to reach or keep the good chemical and ecological status (or potential, if the water body is classified as heavily modified or artificial) until 2015. An assessment of the situation and measures towards the achievement of these goals must be laid down in River Basin Management Plans. As achieving these goals by 2015 is not realistic for all water bodies, updates of the plans were/are foreseen in 2015 and 2021.

Introduction

The International Commission for the Protection of the Danube River has currently updated the Danube River Basin Management (DRBM) Plan by end 2015[3]. The plan addresses the key issues requiring joint actions on the basin-wide level (Level A) and is accompanied by more detailed plans on the national level (Level B).

According to the Danube River Basin Management Plan 2015-2021, about 20% of the Danube river basin surface waters have a status good or above (which is the ultimate aim within the WFD), about 4% show a good or above potential. About 49% of the River Water Bodies are at risk or possibly at risk to achieve good ecological status by 2021, about 40% of that share is due to future or ongoing alterations.



The plan also states that "hydropower generation, navigation and flood protection are the key water uses that cause hydromorphological alterations. (...) The alteration of natural hydromorphological conditions can have negative effects on aquatic populations, which might result in failing the EU WFD environmental objectives."

According to a decision of the European Court of Justice in 2015[4] as regards a dredging project on the river Weser, the following two main conclusions as regards application of the WFD in practice can be derived and may also serve as guidelines for practical implementation of maintenance and rehabilitation measures on the Danube and its navigable tributaries[5]:

1. Article 4.1(a) (i) to (iii) of the Water Framework Directive must be interpreted as meaning that the Member States are required – unless derogation is granted – to refuse authorization for a specific project if it may lead to a deterioration of the status of a body of surface water, or where it jeopardises the attainment of good surface water status, or of good ecological potential and good surface water chemical status by the date laid down by the Directive.

[3] http://www.icpdr.org/main/activities-projects/river-basin-management
[4] A ECJ process between the Federal Republic of Germany and the German Federation for the Environment and Nature Conservation (Bund für Umwelt und Naturschutz Deutschland e.V.); (Case C–461/13)
[5] For more information, see the Weser press release: http://curia.europa.eu/jcms/upload/docs/application/pdf/2015-07/cp150074en.pdf

2. The term "deterioration of the status" of a body of surface water, as described in Article 4.1(a)(i), must be interpreted as meaning that a deterioration exists as soon as the status of at least one quality element, according to Annex V of the Directive, deteriorates by one class –even if this deterioration does not lead to a deterioration in the classification of the respective body of surface water altogether. If a quality element according to Annex V is however already in the lowest class, any deterioration of that respective element constitutes a "deterioration of the status" of the body of surface water.

Based on practical experience of waterway administrations, maintenance activities do not have significant negative influence on the status of a waterway in the majority of cases[6]. However, in cases where maintenance activities are liable to cause deterioration of the water status or put at risk the achievement of environmental objectives, they may only be authorised when all conditions under the exemption of article 4(7) WFD are met:

(a) all practicable steps are taken to mitigate the adverse impact on the status of the body of water;

(b) the reasons for those modifications or alterations are specifically set out and explained in the river basin management plan required under Article 13 and the objectives are reviewed every six years;

(c) the reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development, and

(d) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.

For small projects that do not fall within the scope of the EIA Directive (85/337/EEC), a generic approach can be used within this procedure in order to reduce the assessment burden[7].

The DRBM Plan lists Key Future Infrastructure Projects (FIP) for navigation in its Annex and assesses it regarding their compliance with the WFD objectives and potential applicability of Art 4(7). The FIP comprise solely capital interventions.

The following figure[8] provides an example for an iterative approach regarding application of Art 4(7):

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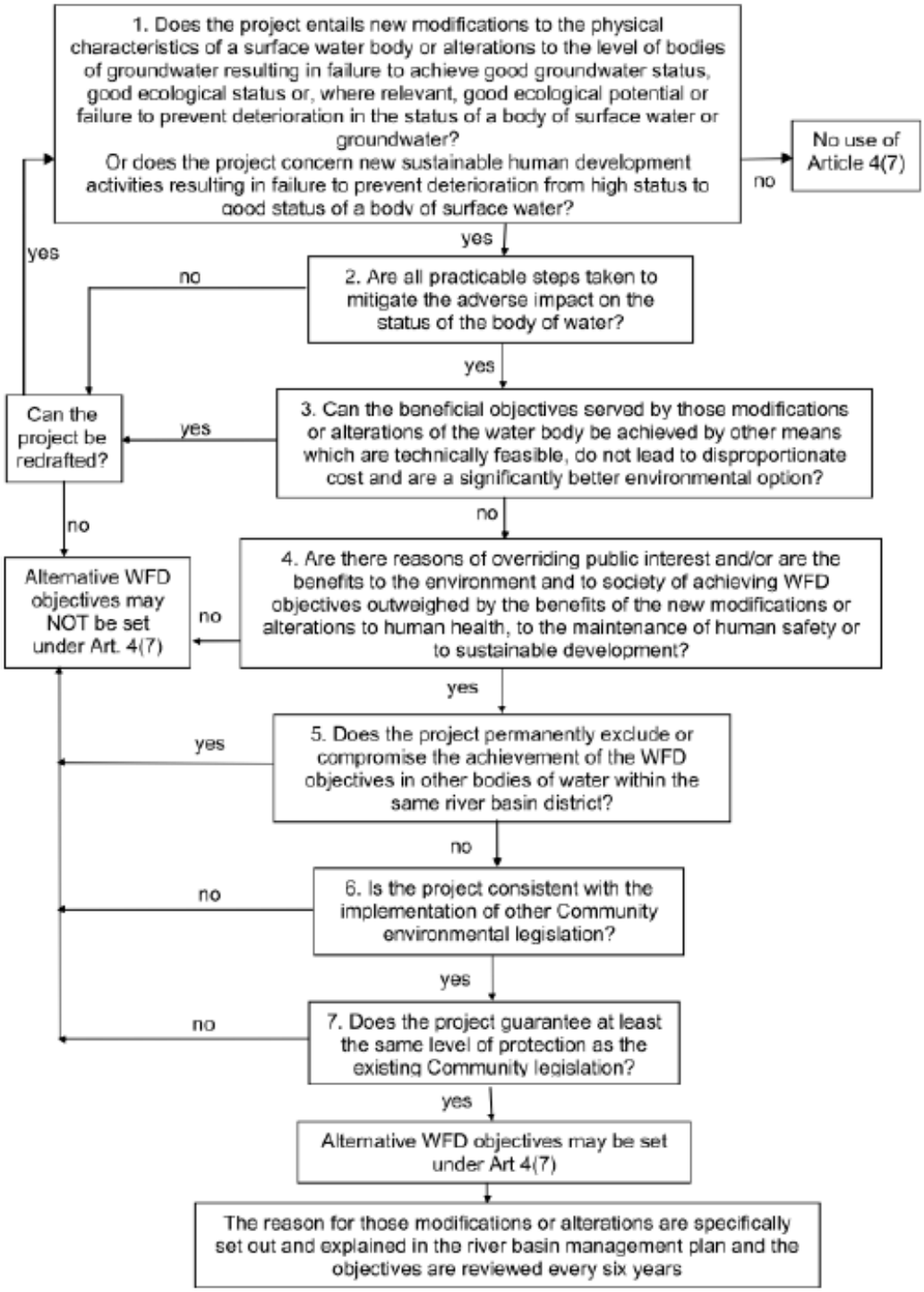
[6]. See, e.g., „Leitfaden Umweltbelange bei der Unterhaltung von Bundeswasserstraßen“, Bundesminister für Verkehr und digitale Infrastruktur, Bundesanstalt für Gewässerkunde (Hrsg.), Bonn, 2015, p.12
[7] Common Implementation Strategy for the Water Framework Directive (2000/60/EC), Guidance Document No 20 on exemptions to the environmental objectives, European Communities, Luxembourg, 2009 , p.25
[8] Idem, p.26


1. Does the project entails new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater resulting in failure to achieve good groundwater status, good ecological status or, where relevant, good ecological potential or failure to prevent deterioration in the status of a body of surface water or groundwater?
Or does the project concern new sustainable human development activities resulting in failure to prevent deterioration from high status to good status of a body of surface water?
no
No use of Article 4(7)
yes
2. Are all practicable steps taken to mitigate the adverse impact on the status of the body of water?
no
yes
yes
3. Can the beneficial objectives served by those modifications or alterations of the water body be achieved by other means which are technically feasible, do not lead to disproportionate cost and are a significantly better environmental option?
yes
Can the project be redrafted?
no
4. Are there reasons of overriding public interest and/or are the benefits to the environment and to society of achieving WFD objectives outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development?
no
Alternative WFD objectives may NOT be set under Art. 4(7)
yes
5. Does the project permanently exclude or compromise the achievement of the WFD objectives in other bodies of water within the same river basin district?
yes
no
6. Is the project consistent with the implementation of other Community environmental legislation?
no
yes
7. Does the project guarantee at least the same level of protection as the existing Community legislation?
no
yes
Alternative WFD objectives may be set under Art 4(7)
The reason for those modifications or alterations are specifically set out and explained in the river basin management plan and the objectives are reviewed every six years

NATURA 2000

Natura 2000 sites are not excluded from further infrastructural development. Planned projects need to be assessed regarding their impact on existing genetics, species and ecosystem diversity and, if necessary, rejected or accepted with conditions.

As it is the case within the Water Framework Directive, maintenance activities are usually not seen as "project" as defined by the Habitats Directive. Thus, a full impact assessment is only necessary in exceptional cases[9]. However, if a maintenance measure might have a significant influence as regards the objectives of the Habitat Directive, an assessment has to be performed. In this case, basically the same (but strongly simplified) procedures apply as within a standard impact assessment. For further guidance on application of the Birds and Habitats Directives in navigation related activities, a reference is made to the Guidance Document on Inland Waterway Transport and Natura 2000[10], issued by the European Commission's Directorate-General for Environment in 2012.

Application of Joint Statement principles

In October 2007, a "Joint Statement on Inland Navigation and Environmental Sustainability in the Danube River Basin" was concluded by the ICPDR, the Danube Commission and the International Sava Commission. It is in essence aimed at finding the balance between good ecological status (as required by the WFD) and good navigation status (as required by article 15(3)b of the TEN-T guidelines).

The Joint Statement (…) "addresses, first of all, structural interventions and measures on rivers serving inland waterway transport; non-structural measures will also have to be undertaken to successfully upgrade and sustain inland waterway transport economically. (…) Full respect of the existing legal framework, including all relevant transport and environment legislation (national legislation, EU directives and international requirements), is a pre-condition for any activity in the Danube region."

Some of the most important principles included in the Joint Statement refer to the early **involvement of key stakeholders** and the **creation of a transparent planning process based on comprehensive data**. The Master Plan as such and the continuous update of national action plans have been also created for this reason.

In the years after 2007, the responsible government authorities and interest groups met regularly to discuss the progress achieved so far and how to improve the application of the Joint Statement in waterway projects. Activities on the Fairway Rehabilitation and Maintenance Master Plan have also been presented in the framework of these regular meetings, as well as in the context of the interdisciplinary PA1a Steering Group meetings of the European Union Strategy for the Danube Region.

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[9] Common Implementation Strategy for the Water Framework Directive (2000/60/EC), Guidance Document No 20 on exemptions to the environmental objectives, European Communities, Luxembourg, 2009 , p.25
[10] http://ec.europa.eu/environment/nature/natura2000/management/docs/IWT_BHD_Guidelines.pdf

Introduction

The rehabilitation and maintenance measures and activities monitored within the context of the Master Plan (surveying, fairway relocation, dredging and better information) have the character of reversible interventions, as recommended by the Joint Statement. **Effects of measures are monitored and – if relevant – adapted** in the context of the national permitting processes. The overall effects of measures shall be summarised in the action plans at hand.

Lastly, the transboundary FAIRway Danube project and the EUSDR support the **use of best practice measures** to improve navigation through the established cooperation mechanisms between waterway administrations.

The FAIRway project

The FAIRway project (07/2015 – 06/2020) is the main overarching initiative to implement the activities of the Danube Fairway Master Plan. Seven project partners represent six riparian states (viadonau (Austria), ARVD - Waterborne Transport Development Agancy (Slovakia), OVF - Orszagos Vizugyi Foigazgatosag together with NDA - Nemezeti Infrastruktura Fejleszto Zrt. (Hungary), AVP - Agencija za vodne putove (Croatia), EAEMDR - Executive Agency for Exploration and Maintenance of the Danube River (Bulgaria), AFDJ - Administration of the Lower Danube (Romania), ACN - Administration of the Navigable Canals (Romania)).

As a first step, FAIRway coordinates the updates of the national action plans of the countries participating in the project. The remaining countries (Germany, Bosnia and Hercegovina, Serbia, Moldova and Ukraine) were invited to provide their contributions via the EU Strategy for the Danube Region (Priority Area 1a on Inland Waterways). The related country chapters are attached to this report as an Annex.Further activities within FAIRway comprise:

- Outlining of pilot activities for hydrological services based on the national action plans
- Coordinated purchase of advanced equipment for hydrological services (gauging stations, surveying vessels etc.)
- Realization and Evaluation of pilot activities:
    - Basic data for all critical sections
    - Coherent monitoring scheme for the navigation status
    - Harmonised water level forecasts
    - Optimized relocation of the fairway
- Develop innovative approaches
- Prepare documentation for selected future implementation measures

The FAIRway budget amounts to 23.4 Mio €, including an EU co-financing (CEF) of 19.6 Mio €.

Adoption of action plans

The Action Plans are prepared within the FAIRway project. The FAIRway Steering Committee will be asked to approve the Action Plans for the countries participating in the project (Austria, Slovakia, Hungary, Croatia, Romania and Bulgaria) from a technical point of view. However, the Steering Group of PA1a remains the body responsible for final coordination and adoption of the Action Plans for all Danube riparian countries.

3 Synthesis and conclusions

3.1 Fairway conditions

High water levels, measured at static gauging stations, do not automatically guarantee sufficient fairway depths over the fairway width which is required for navigation. Due to the intense dynamics in the free-flowing river sections, the morphology of the riverbed and thus fairway depth and/or width may change rapidly. Maintenance interventions are needed to provide the required fairway parameters under the given hydrological circumstances.

The recommended **target** of the Fairway Rehabilitation and Maintenance Masterplan is to provide a **fairway depth exceeding 2.5 m[11] on a number of days per year that is equal or above the number of days showing an actual water level equal or above the statistical Low Navigable Water Level (LNWL)**[12].

Fairway conditions were comparably good in the first three quarters of 2016. After January, which showed fairway depths below 2.5m on most critical sections as a continuation of the bad winter in 2015, minimum fairway depths were exceeded along the Danube due to good hydrological conditions. As of September though, water levels dropped drastically on the Lower Danube, where 2.5m could no longer be reached on many critical sections. According to reports from the sector, the situation continued to be critical in October. The most crictical section was Cochirleni, where the minimum fairway depth could not be reached as of July.

[11] Or the respective target value relevant for the special section (e.g. 2.0 m in Straubing-Vilshofen on the German Danube)
[12] LNWL = the water level reached or exceeded at a Danube water gauge on an average of 94% of days in a year (i.e. on 343 days) over a reference period of several decades

3.2 Expenditures and budgets for maintenance and rehabilitation

The FAIRway partners came up with their operational budget needs for 2017. As **budget negotiations are still ongoing** in most countries, the **operational budget needs are not secured yet** (HU, HR, RO, BG).

Operational cost (€)

	required operational budget 2016	secured operational budget 2016 *	estimated expenditures 2016**	reqired operational budget 2017	secured operational budget 2017
A	7.629.278	7.629.278	7.629.278	6.110.221	yes
SK	2.870.000	2.870.000	1.967.653	1.961.653	yes
HU	2.003.489	4.864.480	783.000	1.156.000	703.500
HR	989.200	1.008.200	489.000	595.000	temporary financing Jan - Apr
RO	19.452.384 (10.841.032 for locks)	19.052.238 (10.841.032 for locks)	19.452.384 (10.841.032 for locks)	17.136.500 (7.500.000 for locks)	not yet submitted
BG	1.665.500	363.500	1.219.483	4.002.501	under negotiation

* estimated in May 2016 ** estimated in October 2016

Considerable investments have been initiated in the last years since the launch of the Master Plan. The amount varies, but **at least a third of the national needs declared in 2014 have been satisfied in most of the FAIRway Danube countries**. Most of the available investment budget is based on EU co-financing.

Investment cost (€)

	needs 2014-20	secured	thereof EU co-financed	remaining gap
A	-	-	-	-
SK	8.080.000	2.010.000		75%
HU	4.333.700	22.181.397	18.854.187	0,9%
HR	4.588.000	2.149.000	67%	63%
RO	41.058.000 (thereof locks: 400.000)	21.206.701 (thereof locks: 200.000)	78% (locks: 85%)	48% (locks: 50%)
BG	21.132.000	8.947.067	85%	62%

3.3 Environmental impacts

According to the Danube River Basin Management Plan 2015 by the International Commission for Protection of the Danube River (ICPDR), the majority of the Danube is classified as heavily modified water body with moderate or worse ecological potential. In order to achieve good ecological potential and status (natural water bodies) as required by the Water Framework Directive, an **integrated planning approach is applied in the Danube countries** as regards navigational maintenance and rehabilitation measures. Information on environmental measures and legal permits related to dredging interventions is provided in the country chapters.

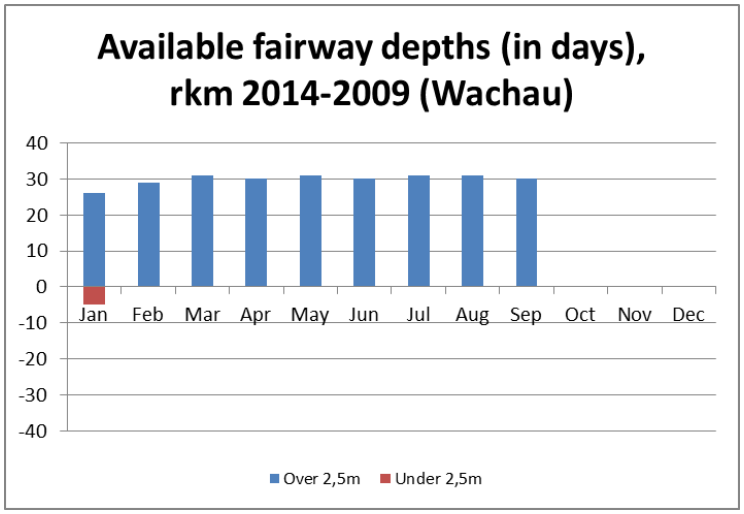
4 Austria

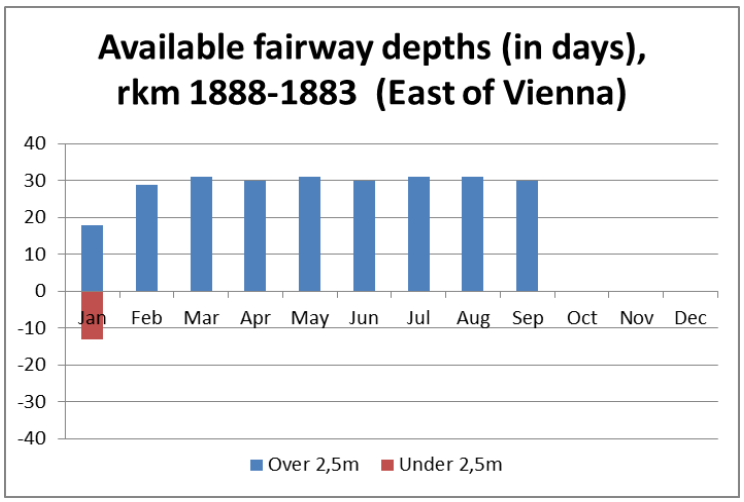
viadonau– Österreichische Wasserstraßen-Gesellschaft mbH (state owned) is responsible for fairway maintenance, rehabilitation and upgrade.

4.1 AT | Status report on main critical locations 2012 – Sept 2016

Number of days with fairway depths ≥ 2,50m on main critical locations *for a fairway width according to Level of Service 1 (40-80m)*

Critical location	2012	2013	2014	2015	Jan-Sept 2016
Wachau	366	359	352	323	269
East of Vienna	318	315	222	224	261





From January until September 2016, the Austrian Danube saw good conditions – in the critical section Wachau as well as the critical stretch East of Vienna. Only in January, fairway depth was below 2.5 metres on 5 resp. 13 days. The summer months showed very good conditions in contrast to the year before, where, for example, in the second half of 2015 (July–December), even 119 days (or 65%) with a fairway depth lower than 2.50 metres were recorded East of Vienna. On this stretch, in the period January – September 2016, the value for days above 2.5m (261) is already higher than for the whole year 2015 (224)

4.2 AT | Hydrological conditions on main critical locations 2012 – Sept 2016

The following table contains information about the number of days with a flow discharge (m^3/s) above multiannual average flow discharge for the main critical locations Weißenkirchen and Dürnstein in the Wachau valley and Treuschütt and Hainburg in the section east of Vienna. The reference gauge station for critical locations in the Wachau valley is Kienstock (river-km 2015.21), for those in the section east of Vienna it is Wildungsmauer (river-km 1894.72).

Calculations for discharge values in days as given in the following table were performed on the following assumptions:

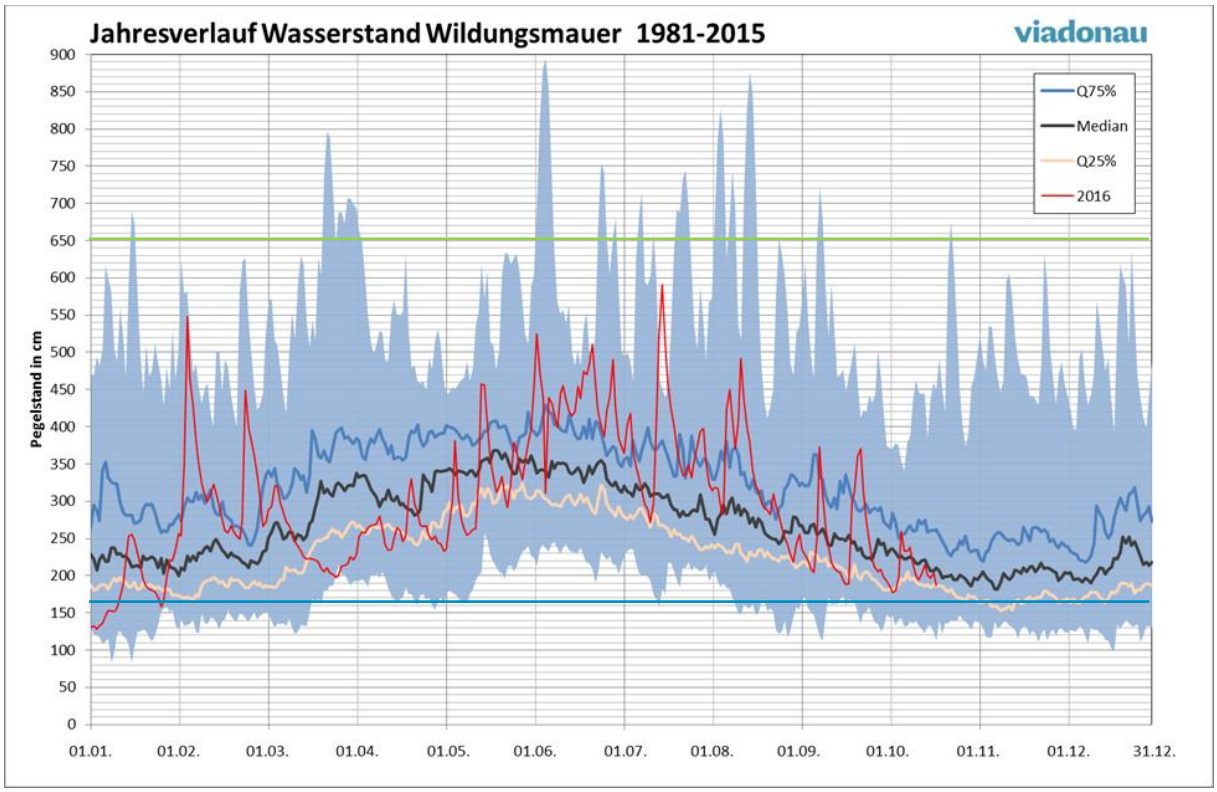
1) "Multiannual" refers to the years 1981–2010 which is the period on which the latest calculation of characteristic water levels for the Austrian section of the Danube (i.e. KWD 2010) was based.
2) "Average flow discharge" is the arithmetic mean of the mean annual discharge for the years 1981–2010.

Critical location	Reference gauges	No. of days ≥ multiannual average flow discharge (m^3/s)				
		2012	2013	2014	2015	Jan-Sept 2016
Wachau	Kienstock + Dürnstein	199	162	83	99	134
East of Vienna	Wildungsmauer + Thebenerstraßl	187	155	95	100	135

4.3 AT | Water level information on main critical locations 2012 – Sept 2016

Critical location	Reference gauges	No. of days ≥ LNWL				
		2012	2013	2014	2015	Jan-Sept 2016
Wachau	Kienstock + Dürnstein	366	365	365	330	265
East of Vienna	Wildungsmauer + Thebenerstraßl	366	365	355	310	261

Water level gauge East of Vienna 1981- Sept 2016



In the year 2016, good conditions as regards the water levels were encountered in the free-flowing and critical locations east of Vienna. Water level gauges measured values above the median value in a considerable part of the year, especially during the summer months. (The blue line in the graphic above represents the applicable LNWL, the green one the respective HWL).

The number of days above multiannual average flow discharge from Jan - Sept was already higher than for the complete yeary 2014 and 2015.

4.4 AT | Key issues and related activities Jan-Sept 2016

Related to the key issues illustrated in the Fairway Rehabilitation and Maintenance Master Plan (version: December 2014):

	Key issues	*Need for action*	*Activities performed Jan-Sept 2016*
AT 01	Maintaining water level measurements during extreme weather events	Establishment of back-up energy supply systems at automatic gauging stations	*Equipping most important water gauging stations with high-capacity batteries in combination with solar panels to keep gauges running as stand-alone systems*
AT02	Maintaining technical equipment of gauging stations to avoid data errors and gaps	Staff for weekly or even daily on-site checks	*Inventory of existing gauging stations and classification regarding priority, identification of human and financial resources*
AT 03	Limited flexibility and limited dredging capacity on the market due to small number of dredging service providers	Support opening-up of limited market for dredging activities	*Set up of multi-annual framework contract for dredging services with contractors.*
AT04	Limited fairway depth in shallow sections to the East of Vienna	Optimisation of the shallow section at Petronell - Witzelsdorf	Completed in (October 2015
AT04		Optimisation and readjustment of shallow section Bad Deutsch-Altenburg (planning and implementation of respective river engineering measures).	Submission of project at the national authorities Receipt of authorisation and permits
AT05	Proper and up-to-date user information on available fairway depths in critical sectors	Display of recent surveying results of shallow sections in a differentiated manner	*Designation and display of "deep navigation channel" within the existing fairway and integration in the published maps*

4.5 AT | Review of rehabilitation and maintenance activities Jan-Sept 2016

The following activities relate to all critical locations as identified in the Rehabilitation and Maintenance Master Plan (version December 2014):

Riverbed surveying activities Jan-Sept 2016

During 2016, hydrographic surveys were carried out according to plan.

River-km (from-to)	Frequency of surveying	Type of survey (single-/multi-beam)
Free-flowing sections:		
1921.00 to 1872.70	February + March September + October	Single-beam + multi-beam Single-beam
1921.00 to 1872.70*	June	Single-beam + multi-beam
2038.00 to 1997.30	March + April October + November	Single-beam Single-beam
2038.00 to 1997.30*	June	Single-beam + multi-beam
Shallow section monitoring on entire Austrian stretch:		
2223.40 to 2096.02	Monthly	Single-beam
2094.21 to 1949.57	Monthly	Single-beam
1948.88 to 1872.70	Monthly	Single-beam
Sections in reservoirs of river power plants:		
2223.20 to 2203.40	January	Single-beam
2146.60 to 2119.70	January	Single-beam
2060.10 to 2038.50	May	Multi-beam
1998.00 to 1980.50	May	Single-beam
2162.60 to 2147.40	July	Multi-beam
1979.80 to 1949.40	July	Single-beam

* only critical locations according to catalogue of critical locations

Fairway relocation activities Jan-Sept 2016

Due to the very limited cross-section of the Austrian section of the Danube, fairway relocation is usually no significant option for fairway maintenance at viadonau. From January to September 2016, no significant relocation activities took place on the Austrian stretch of the Danube.

Fairway marking and relocation tasks lie within the field of competence of the Austrian Navigation Authority ("Oberste Schifffahrtsbehörde - OSB" In 2016 and 2017, these activities (and modernisation of the system) are being transferred to viadonau. As of 2018, viadonau will implement fairway marking and relocation on the Austrian Danube.

Dredging activities Jan-Sept 2016

Designation of assignment	Dredging site		Dumping or placement site		Beginning of service	End of service	Mat-erial	Utilisation	m^3	Per-mits (see next table)
	from river-km	to river-km	from river-km	to river-km						
Wendeplatz Theben	1879,8	1879,1	1884,1	1.883,50, right	12.01.2016	20.01.2016	Gravel	Dumping	7274,2	1
Furt Rote Werd I	1896,5	1895,5	1901,8	1.901,00, left	26.01.2016	01.02.2016	Gravel	Dumping	11229	1
Furt Bad Deutsch-Altenburg	1886,9	1886,1	1888,6	1.888,25, right	01.02.2016	17.02.2016	Gravel	Dumping	17317	1
Furt Petronell-Witzelsdorf	1893,4	1891,8	1895,7	1.895,20, right	08.02.2016	10.02.2016	Gravel	Dumping	6275,9	1
Furt Regelsbrunn I	1898,8	1898	1904,6	1.903,10, right	10.02.2016	17.02.2016	Gravel	Dumping	11857	1
Furt Rote Werd II	1896,5	1895,5	1901,8	1.901,00, left	17.02.2016	02.03.2016	Gravel	Dumping	15136	1
Furt Treuschütt I	1888,4	1887,6	1895,8	1.895,30, right	17.02.2016	03.03.2016	Gravel	Dumping	12890	1
Furt Rote Werd III	1896,5	1895,5	1899,6	1.899,10, left	07.03.2016	09.03.2016	Gravel	Dumping	6035,8	1
Furt Treuschütt II	1888,4	1887,6	1895,8	1.895,30, right	08.03.2016	11.03.2016	Gravel	Dumping	4603	1
Furt Regelsbrunn II	1898,8	1898	1904,6	1.903,10, right	09.03.2016	10.03.2016	Gravel	Dumping	4965,8	1
Furt Bad Deutsch-Altenburg II	1886,9	1886,1	1889,8	1.889,00, right	16.03.2016	21.03.2016	Gravel	Dumping	8688,9	1
Furt Bad Deutsch-Altenburg	1887,6	1886,1	1904,9	1903,8, left	01.08.2016	19.08.2016	Gravel	Dumping	45374	1
Furt Rote Werd	1896,5	1895,5	1909,9	1908,5, right	04.08.2016	02.09.2016	Gravel	Dumping	34280	1
Furt Petronell-Witzelsdorf	1893,2	1891,8	1907,1	1906,5, right	31.08.2016	23.09.2016	Gravel	Dumping	19813	1
Furt Regelsbrunn	1899	1897,8	1908,1	1907,5, middle/ right	02.09.2016	19.09.2016	Gravel	Dumping	28698	1
Furt Käsmacher	1875,7	1895,1	1883,4	1882,9, right	26.09.2016	05.10.2016	Gravel	Dumping	10200	1
Furt Treuschütt	1888,6	1887,6	1908,2	1907,4, middle/ right	28.09.2016	ongoing	Gravel	Dumping	ongoing	1
Furt Weißenkirchen	2014	2013,6	2026,5 li	2025,7 left	08.09.2016	23.09.2016	Gravel	River bank structurig	7872,8	2

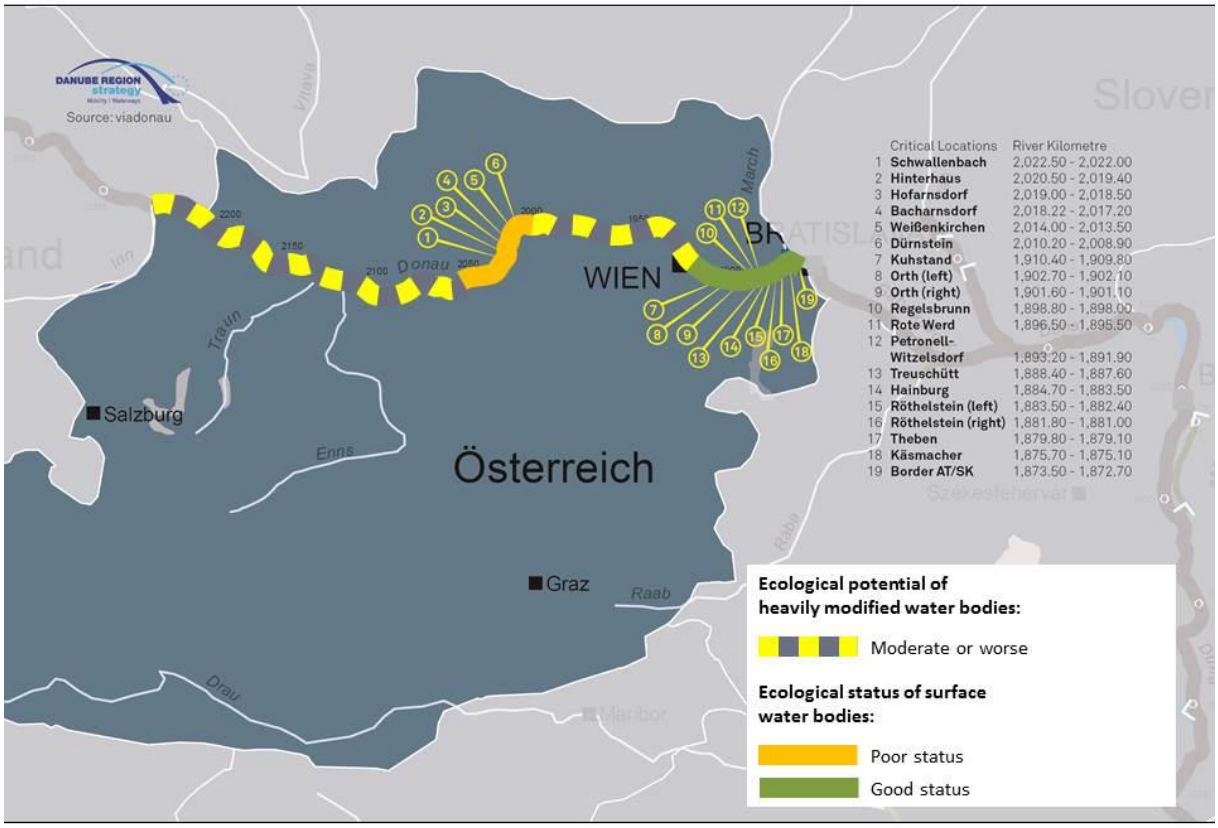
In total, 252.510,47 m^3 were dredged for commercial navigation in the first 3 quarters of 2016. NOTE: The above table only includes maintenance dredging in the main course of the fairway, it does not include various maintenance dredging activities which were also performed in 2015 in port basins or at mooring sites.

Referenced and relevant permits	Title of permit (original language)	Permitting authority	Permit applicable		Valid until	Type of permit (e.g. environmental, water, navigation law)	Main conditions for permit
			from river-km	to river-km			
1	WSD – generelles Projekt "Regulierungsmaßnahmen zur Verbesserung der Schiffahrtsverhältnisse auf der Donau stromab des KW Freudenau"	Federal Ministry for Agriculture, Forestry, Environment and Water Management	1.910,00	1.872,70	21/03/2099	Water Law	• A maximum of 50 % of dredged gravel may be used for structuring measures (river banks, islands), the rest is to be dumped into the river • After high waters sediment in ford areas has to be removed as fast as possible at a width of 80/100 m • As far as possible, ecological aspects shall be accounted for when planning single measures • Dredging measures shall be kept to a minimum
2	LIFE Natur Projekt Wachau, Uferstrukturierung in der Wachau	Administrative District Authority Krems	2.033,35	2.003,85	31/12/2020	Water Law, Navigation Law, Nature Conservation Law	• Establishment of ecological construction supervision, drafting annual monitoring reports • Consideration of spawning seasons of fish in performance of measures • No impediment for navigation must be created by island structuring measures • No technical lining is allowed for newly created islands

4.6 AT | Summary of current ecological status and environmental impacts

The main stretch of the Austrian Danube is declared as “Heavily modified water bodies – Final Designation” according to the Water Framework Directive. The only two exceptions pertain to the free flowing sections in the Wachau and the stretch to the east of Vienna. These two stretches are designated as “Natural water bodies”.

The following map displays the ecological status and ecological potential of the Austrian Danube – according to the Danube River Basin Management Plan/Update 2015 – against the background of the critical navigation locations in Austria.

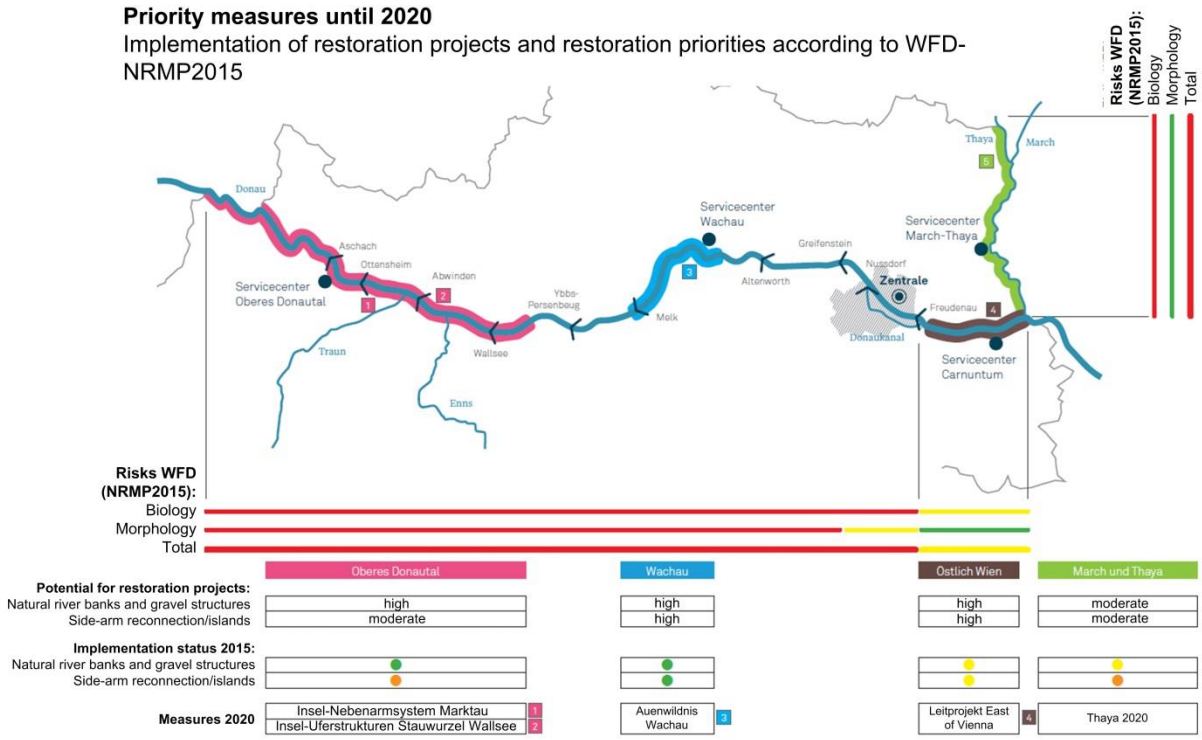


Ecological status and ecological potential of surface water bodies
(Source: DRBM Plan – Update 2015)

The designation as heavily modified water body of main parts of the Danube is mainly attributed to barrages for hydropower generation within the draft national water management plan for Austria (2015), whereas the attainment of good ecological status is considered to be achieved to the east of Vienna. Good ecological status is estimated to be achievable and as possible in the Wachau, whereas good status is already achieved East of Vienna. For the heavily modified water bodies measures are to be implemented for the achievement of the good ecological potential.

Measures to improve environmental conditions

A significant number of measures has already been taken between 2009 and 2015 to improve river continuity, reconnecting wetlands/floodplains and hydrological alterations like impoundments, ensuring ecological flows. Structural projects to improve the ecological status and ecological potential of the Danube in Austria and priorities are displayed on the map below.



As explained by the draft national water management plan for Austria (2015):

- "The Austrian Danube is characterised by a chain of hydropower plants affecting the sediment regime of the Danube. One of the two free flowing sections left is between Vienna (downstream of hydropower plant Freudenau) and the Austrian-Slovakian border where the character of a mountain river is still maintained. This river section shows an ongoing erosion of the riverbed at an average rate of 2.0 to 3.5 cm per year. The decreasing water tables of the Danube and of the associated groundwater seriously affect and endanger the ecology of the floodplains in the "Donau-Auen National Park". In addition, inadequate and seasonally strongly fluctuating fairway depths in this section of the river substantially affect navigation."
- "The Integrated River Engineering Project on the Danube to the East of Vienna was launched to improve the hydromorphology of the river and ecology of the floodplains (in line with equivalent levels of flood protection) as well as to improve the fairway conditions in this section of the Danube. The main measures are i) the granulometric improvement of the river bed to provide long-term stabilisation of the river bed and of groundwater conditions; ii) restoring lateral connectivity and removing parts of the river bank for long-term stabilisation of the ecological conditions in the National Park "Donau-Auen"; and iii) innovative low water regulation measures which improve fairway conditions for navigation. Further information on the project is provided on the project's website: http://www.donau.bmvit.gv.at/en/".

Navigation maintenance measures and environmental impacts

Maintenance works are executed in the framework of navigation law (Wasserstraßengesetz BGBl. I Nr.177/2004), water law (Grundsatzgenehmigungsbescheid "Regulierungsmaßnahmen zur Verbesserung der Schifffahrtsverhältnisse auf der Donau stromab des KW Freudenau" of 14th August 2003) and the National Park Act (BGBl. I Nr. 17/1999).

By the end of 2015 a general permit was obtained for carrying out maintenance activities outside of the central fairway east of Vienna for a period of 5 years. The project study, which provided the basis for the permit "Erhaltungsmaßnahmen außerhalb der zentralen Fahrrinne östlich von Wien auf dem Gebiet des Nationalparks Donau-Auen – Strom-km 1915,00 bis 1880,00" was developed in close cooperation with involved key stakeholders. The project study systematically analyses the impacts of maintenance activities on natural species, taking into account opinions drawn up by official experts on nature conservation and water ecology.

4.7 AT | Budget status 2015 – September 2016

Investments taken for FRMMP implementation 2014 – September 2016

Need areas	Required additional investment 2014 – 2020 according to FRMMP	Investment cost secured by state or other co-financing 2015 – 2020	(% thereof EU co-financed)	Remaining financing gap - Investments according to FRMMP
Minimum fairway parameters (dredging)	0	0	0	0
Surveying of the riverbed	0	0	0	0
Water level gauges	0	0	0	0
Marking of the fairway	0	0	0	0
Availability of locks / lock chambers	0	0	0	0
Information on water levels and forecasts	0	0	0	0
Information on fairwaydepths	0	0	0	0
Information on markingplans	0	0	0	0
Meteorologicalinformation	0	0	0	0
Other needs	0	0	0	0
Sum (Euro)	**0**	**0**	**0**	**0**

Operational expenditures for current activities 2016 and budget needs 2017

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	5.503.413	4.221.798	4.221.798	0
Surveying of the riverbed	1.001.185	834.318	834.318	0
Water level gauges	1.124.680	1.054.105	1.054.105	0
Marking of the fairway				
Availability of locks / lock chambers				
Information on water levels and forecasts				
Information on fairway depths				
Information on marking plans				
Meteorological information				
Other needs				
Sum (Euro)	**7.629.278**	**6.110.221**	**6.110.221**	**0**

4.8 AT | Outlook: actions, milestones and funding sources

AT 01: Water level measurements during extreme weather events		
Planned activities:	Ensuring automatic water level measurements, validity checks and real-time data transfer throughout extreme weather events and providing these data to management systems	
Current shortcomings:	Currently, there are no shortcomings identified	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Sufficient funding is available through national/company budgets.	
Next steps:	Reach state of the art in real-time data transfer, integration of real-time data into management systems, automatic validity checks with cameras	until 31.12.2016
AT 02: Technical equipment of gauging stations		
Planned activities:	Increase the efficiency in the maintenance of the gauging network system, automatic validity checks with cameras	
Current shortcomings:	Lack of market analysis regarding suitable equipment and software	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Sufficient funding is available through national/company budgets.	
Next steps:	Installation of software for automatic checks	until 31.12.2016
AT 03: Limited dredging market		
Planned activities:	Europe-wide tendering or dredging contracts in order to attract additional tenderers, e.g. from Germany, the Netherlands or Slovakia etc. Feasibility of purchasing a dredging pontoon for in-house use in "emergency cases". In order to cut down on reaction times and procedures, a multi-annual framework contract was prepared and Europe-wide tendering took place in spring 2015	
Current shortcomings:	According to public procurement law, contract must be awarded to tenderer with lowest prices; problem in cases of parallel actions (several critical sectors to be dredged at once) if in both cases the same tenderer is awarded (bottleneck = equipment)	

Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding: x	Budget availability 2015/2016: Sufficient funding is available through national/company budgets.	
Next steps:	Award of multi-annual framework contract to tenderers for dredging measures in free-flowing sections	In force since August 2015
AT 04: Optimisation of waterway engineering measures Bad-Deutsch-Altenburg		
Planned activities:	Optimisation and readjustment of shallow section Bad Deutsch-Altenburg (planning and implementation of respective river engineering measures).	
Current shortcomings:	Insufficient fairway parameters in shallow section Bad Deutsch-Altenburg during low water periods	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	No
Possible funding:	National funding	
Next steps:	Implementation of construction measures	31.03.2017
AT 05: Integration of monthly fairway depths data of critical sectors in the IENC		
Planned activities:	Increased update rate of depth data in Inland ECDIS charts; monthly updates of most important shallow section are planned. (further improvement of up to date and accurate information)	
Current shortcomings:	Update rate of depth data of critical sections in Inland ECDIS is currently too low to be of real value to waterway users (twice per year), given that shallow sections are highly dynamic. Topical depth information must nowadays be retrieved from separate information sources (e.g. FIS Portal, shallow section information). Topical data should be integrated in the wide-spread electronic navigational charts according to the Inland ECDIS standards.	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No negative impacts; positive impacts are that waterway users can exploit available depths better without physical interventions.
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	No

Possible funding:	National funding	
Next steps:	Start of implementation	As of September 2016

5 Slovakia

SVP - Slovak Water Management Enterprise (state owned) is responsible for fairway maintenance, rehabilitation and upgrade.

5.1 SK | Status report on main critical locations 2012 – Sept 2016

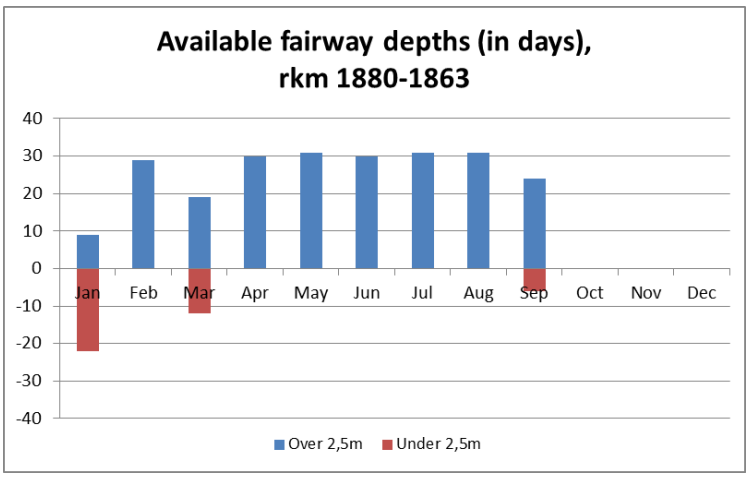
Number of days with fairway depths ≥ 2.5m on main critical locations

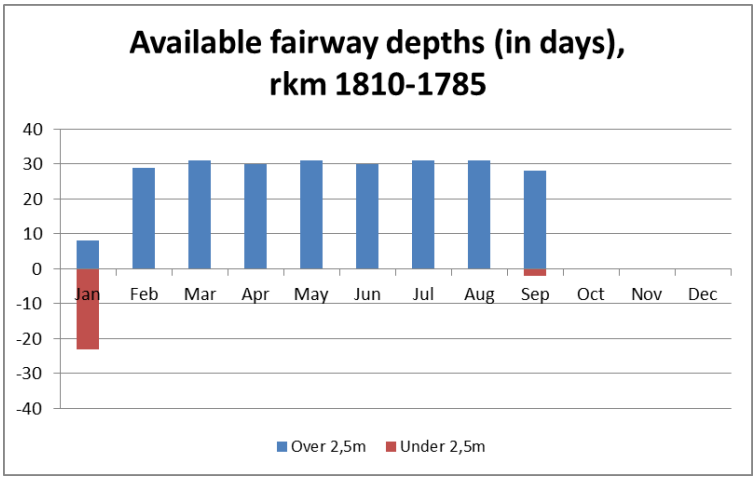
The targeted minimum fairway widths are 60 to 100 m in Slovakia and on the Slovakian-Hungarian border section, on the Slovakian-Austrian section, it is 40 to 80 m.

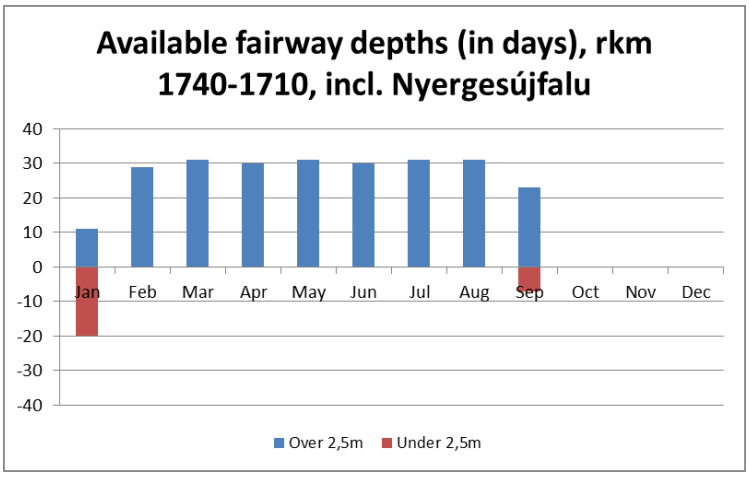
Critical location	2012	2013	2014	2015	Jan-Sept 2016
part I. (rkm 1880 – 1863)	366	365	365	287	234
part II. (rkm 1810 – 1785)	360	341	359	307	249
part III. (rkm 1740 – 1710) including Nyergesújfalu	303	324	300	223	247

In period 1-9/2016 for all three measured sections, Part I. (rkm 1880 – 1863) fairway depth of 2,5 m and more were realised on 234 (85,4%) days, for Part II. (rkm 1810 – 1785) on 249 (90,9%) days and for Part III. (rkm 1740 – 1710) on 247 (90,1%) days.

In the graphs below you can also see the availability of the depths in all three sections in days, which were above or equal 2,5 m.







In Part III. (the most critical section rkm 1735,5 – 1733,7 – Cenkov (in HU language – Nyergesujfalu)) 10 days were below 2,0 m.

The main reasons for not meeting the Level of Service and availability of 2,5 m depth is that on Part II. and Part III. the river bottom is from stone (stony riverbed or stony threshold – rocky bottom) which is actually not possible to remove via currently using technology for dredging (maybe detonation and removing of the stone after that). In Part I. the regular dredging intervention was done according to the plan.

In total, the navigation conditions in mentioned period were standard, no extreme deviation were occurred.

5.2 SK | Hydrological conditions on main critical locations 2012 – Sept 2016

The following table contains information about the number of days with a flow discharge (m3/s) above multiannual average flow discharge for the main critical locations as identified by the Slovak Water Management Enterprise during the surveys and maintenance works on Danube. For the Slovak section of the Danube (common AT-SK, national, common SK-HU), these main critical locations are stretches rkm 1880 - 1863 with reference gauge station in Devin, rkm 1810 –

1785 with reference gauge station Medvedov and rkm 1740 – 1710 with reference gauge station in Sturovo. The most critical section on the entire Slovak stretch of Danube regarding the available width and depth is on rkm 1735,5 – 1733,7 (Cenkov = Nyergesujfalu) which is situated on common SK-HU stretch of Danube.

Calculations for discharge values in days as given in the following table were performed on the following assumptions, where the multiannual average flow discharge is below the average discharge for the individual year of interest.

Critical location	Reference gauges	No. of days ≥ multiannual average flow discharge (m^3/s)				
		2012	2013	2014	2015	Jan-Sept 2016
part I. (rkm 1880 – 1863)	Devin	183	163	88	97	-
part II. (rkm 1810 – 1785)	Medveďov	191	168	86	91	-
part III. (rkm 1740 – 1710) including Nyergesújfalu	Štúrovo	170	191	88	104	-

No data was provided for the first three quarters of 2016.

5.3 SK | Water level information on main critical locations 2012 – Sept 2016

The following table contains information about the number of days with a water level (cm) above Low navigation Water Level for the main critical parts of the Slovak Danube.

Critical location	Reference gauge	No. of days ≥ LNWL				
		2012	2013	2014	2015	Jan-Sept 2016
part I. (rkm 1880 – 1863)	Devin	366	362	349	294	-
part II. (rkm 1810 – 1785)	Medvedov / Gonyu	366	362	348	259	-
part III. (rkm 1740 – 1710) including Nyergesújfalu	Sturovo / Komarom	319	334	292	288	-

No data was provided for the first three quarters of 2016.

5.4 SK | Key issues and related activities Jan-Sept 2016

Related to the key issues illustrated in the Fairway Rehabilitation and Maintenance Master Plan (version: December 2014):

	Key issues	*Need for action*	*Activities performed Jan-Sept 2016*
SK 01	Level of detail of monitoring data is suboptimal for exact and cost-effective planning of dredging interventions	Support acquisition of up-to-date multi-beam sounding vessels, equipment and software	Market research, preparation of the technical specification
SK 05	Different coordinate systems used for measurements in border stretches as an impediment to efficient planning	Support cross-border harmonisation of monitoring standards	Harmonization via transboundary water commissions
SK 06	Old and dredging and marking fleet and equipment	Support acquisition of up-to-date dredging and marking vessels and equipment	Preparation of the specification for marking vessel

5.5 SK | Review of rehabilitation and maintenance activities Jan – Sep 2016

The following activities relate to all critical locations as identified in the Rehabilitation and Maintenance Master Plan (version December 2014):

Riverbed surveying activities Jan – Sept 2016

The following river bed surveying activities (listed below in table) took place according to the annual procedure. Critical locations are monitored within the entire measurement but since 2015 we are performing extra measurements of the critical sections besides the entire stretch measurement.

River-km (from-to)	Frequency of surveying	Type of survey (single/multibeam)
1880,2 – 1872,5	1x per year (done in 5/2016)	Single beam
1872,5 – 1853,0	1x per year (done in 6/2016)	Single beam
1750,0 – 1708,0	1x per year (done in 7-8/2016)	Single beam
Outflow canal Gabcikovo 8,3 – 1811,0	1x per year (done in 6-7/2016)	Single beam

Fairway relocation activities Jan – Sept 2016

The fairway monitoring and marking has been done on weekly basis in Slovakia based on the approved Project of the Marking of the fairway. The changes of the fairway have not been done in mentioned period, only the minor changes were realised by the marking vessels staff with movement of the buoys based on actual water level condition.

Dredging activities Jan – Sept 2016

We are doing the maintenance of the fairway based on the parameters of the fairway which have to be guaranteed, width of the fairway on rkm 1790 -1880 is 120m (depth 2,5m + 0,2m) and on rkm 1790 – 1709,8 is 150m (depth 2,8m + 0,2m)

Designation of assignment	Dredging site		Dumping or placement site		Begin-ning of servic e	End of serv ice	Mate-rial	Utilisa-tion	m3	Referenced and relevant permits (see next table)
	from river-km	to river -km	from river-km	to river-km						
Regulation dredging of Danube on national stretch	1865, 20	186 4,5 0	Pool Gravel		04.04 .2016	Dec emb er 201 6	gravel-sand	Storage	53 731 (1-9/201 6)	n/a, see below
regulation dredging	Cunet te of the reserv oir	Cun ette of the rese rvoir	-		Janua ry 2016	Aug ust 201 6	gravel-sand	storage	29 836	n/a
Regulation dredging	1792, 700	179 1,5 5	-		Septe mber 2016	Dec emb er 201 6	Gravel-sand	Storage	-	n/a

In total, 83 567 m3 were dredged for commercial navigation in period 1-9/2016.

Referen-ced and relevant permits	Title of permit (original language)	Permitting authority	Permit applicable		Valid until	Type of permit (e.g. environ-mental, water, navigatio n law)	Main conditions for permit
			from river-km	to river-km			
1	tba	xxx	xxx	xxx	xxx	xxx	n/a

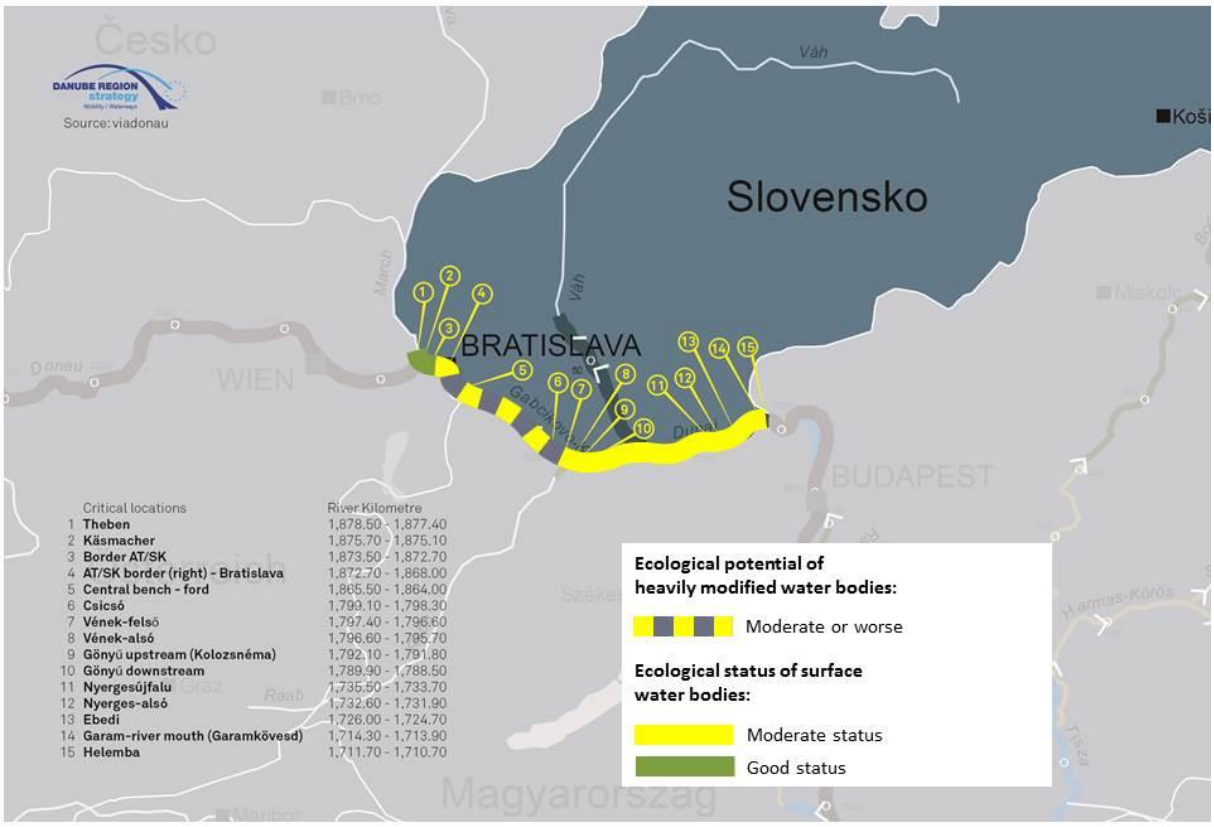
SVP is according to the Act No. 338/2000 Coll. On Inland Navigation the only enterprise which is authorized and responsible to perform fairway marking and works related to marking (dredging included). Thus, only a permission from the Transport Authority is needed, who publishes navigation notices for the time period which is needed for dredging works. These notices ensure navigation safety and are published on the website of the Transport Authority.

The Slovak Ministry of Environment approves the „ Plan of dredging works“ for one year. In case that the dredged material is stored on the banks near the Danube and the places are in a protected area, permissions from relevant organisations are needed in addition.

5.6 SK | Summary of current ecological status and environmental impacts

The Danube river stretch is in the Slovak Republic divided into four surface water bodies, two of them have been designated as heavily modified water bodies and two as natural water bodies and three of mentioned water bodies are transboundary.

The following map displays the ecological status and ecological potential of the Slovakian Danube – according to the Danube River Basin Management Plan/Update 2015 – against the background of the critical navigation locations in Slovakia.



Ecological status and ecological potential of surface water bodies
(Source: DRBM Plan – Update 2015)

According the DRBM Plan – Update 2015, one of the natural water bodies is in good ecological status and one is in moderate ecological status, designated with high confidence level. Both of heavily modified water bodies are in moderate ecological potential designated with medium confidence level. As environmental objectives for both natural water bodies a good ecological status is assigned and for both heavily modified water bodies good ecological potential is assigned. Hydromorphological conditions of heavily modified water bodies are affected by lateral connectivity interruptions and morphological alterations.

Measures to improve environmental conditions

On the three water bodies not reaching the environmental objectives yet, the positive impact of realised measures is expected until 2021, but still are in the risk of not reaching the targets. For example on the natural water body in moderate ecological status there is a risk of not reaching the targets due to change of biotopes. Measures to improve hydromorphological conditions were realized namely reconnection of wetlands/floodplains along the Slovakian part of the Danube River.

Navigation maintenance measures and environmental impacts

Maintenance works are executed in the framework of inland navigation law (Zákon o vnútrozemskej plavbe č. 338/2000 Z.z) and in the frame of water law (Zákon o vodách 364/2004 Z.z.) where is mentioned that SVP as the waterway administration is responsible for the maintenance of fairway and waterway in Slovakia.
Actually no project which focuses on the analyses of the impacts of the maintenance activities on environment on Slovak stretch of the Danube River.

5.7 SK | Budget status

Investments taken for FRMMP implementation 2014 – September 2016

Need areas	Required additional investment 2014 – 2020 according to FRMMP	Investment cost secured by state or other co-financing 2015 – 2020	(% thereof EU co-financed)	Remaining financing gap - Investments according to FRMMP
Minimum fairway parameters (dredging)	6.100.000			6.100.000
Surveying of the riverbed	450.000	500.000	0	0
Water level gauges				
Marking of the fairway	1.510.000	1.510.000	0	0
Availability of locks / lock chambers				
Information on water levels and forecasts				
Information on fairwaydepths	20.000	20.000		
Information on markingplans				
Meteorological information				
Other needs				
Sum (Euro)	**8.080.000**	**2.010.000**		**6.100.000**

Operational expenditures for current activity 2016 and budget needs 2017

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	1.378 102	1.350.000	1.350.000	0
Surveying of the riverbed	83.000	85.000	85.000	0
Water level gauges				
Marking of the fairway	500.551	500.551	500.551	0
Availability of locks / lock chambers				
Information on water levels and forecasts				
Information on fairway depths				
Information on marking plans				
Meteorological information				
Other needs				
Sum (Euro)	**1.967.653**	**1.961.653**	**1.961.653**	**0**

5.8 SK | Outlook: actions, milestones and funding sources

No update of the following table was provided.

SK 01: Level of detail of monitoring data is suboptimal for exact and cost-effective planning of dredging interventions		
Planned activities:	Support acquisition of up-to-date multi-beam sounding vessels, equipment and software, managing of the purchasing	
Current shortcomings:	Missing of the multi-beam sounding vessel	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Funding through Project FAIRway (CEF)	
Next steps:	If project approved, then definition of the condition for the public procurement, competition itself, purchasing of the vessel with all requested devices, starting of the using (measurements)	Until 2017
SK 02: Out-of-date information technology, missing database for monitoring data		
Planned activities:	Support establishment of Fairway Management System, Establishment, development and installation of the management system is planned within the implementation of the FAIRway Slovakia project	
Current shortcomings:	Missing system actually	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Funding through Project FAIRway (CEF)	
Next steps:	Fairway Management System installation	Until 2017-2018
SK 03: Insufficient number of skilled staff to monitor of the fairway		
Planned activities:	Actually only experienced staff available (closely to retirement), securing of the well-trained staff after purchasing of the new marking vessel (from the project FAIRway Slovakia)	
Current shortcomings:	Lack of new experienced staff due to company budget limitation (budget depending on Ministry annual budget)	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate	Not applicable

	these impacts?	
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Funding through Project FAIRway (CEF) and company budget	
Next steps:	New marking vessel, needs of having new trained staff	Until 2017-2018
SK 04: Different departments performing the monitoring as an impediment to efficient planning		
Planned activities:	Development and installation of the common database, monitoring done by hydromorphology department (single beam) & by Branch Danube (before and after dredging intervention)	
Current shortcomings:	Missing common database	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Funding through Project FAIRway (CEF)	
Next steps:	Definition of the structure and content of the database (based on NEWADA duo database task result)	until 2017-2018
SK 05: Different coordinate systems used for measurements in border stretches as an impediment to efficient planning		
Planned activities:	Actually exchanging of the data are based on UTM coordinate system and all cross-border partners exchange the data according to the agreements done on TWC level	
Current shortcomings:	A little bit complicated exchange process	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Funding through company budget, CBC funds	
Next steps:	Definition of the problems, possible solutions, proposals on TWC level	in progress
SK 06: Old and dredging and marking fleet and equipment		
Planned activities:	Acquisition of the new marking vessel, modernisation and purchasing of new dredgers later in next investment project	

Current shortcomings:	Old fleet of dredgers (high maintenance fee), old marking vessels, modernisation and acquisition requested	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Project FAIRway (CEF) for marking vessel (multioperational vessel), for dredgers – follow up investments funds	
Next steps:	Acquisition of marking vessel	until 2017
SK 07: Lack of staff and resulting missing flexibility in case of urgencies (related to dredging activities)		
Planned activities:	Ensuring of the well-trained and educated staff in parallel with purchasing of the new dredgers	
Current shortcomings:	Old fleet of dredgers (high maintenance fee)	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Investments funds	
Next steps:	Definition of the possible projects	until 2018-2019
SK 08: Frequent need to adjust fairway marking as substitution for dredging activities		
Planned activities:	Installation of the Fairway Management System (planning in following project NEWADA III), harmonisation with marking department (marking trips done on weekly basis)	
Current shortcomings:	Missing Management system or common database	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2015/2016: Funding through Danube Transnational Programme (NEWADA III project), FAIRway Project	
Next steps:	Definition of the structure of the database (possibility of using existing database structure developed within NEWADA duo – Marking plans task)	until 2018

6 Hungary

The **General Directorate of Water Management** is responsible for fairway maintenance. It has three subordinated regional organizations (Water Directorate, VIZIG) for waterway maintenance on the Danube:

1. North-Transdanubian Water Directorate (1,811-1,708 rkm)
2. Middle-Danube-Valley Water Directorate (1,708-1,560 rkm)
3. Lower-Danube-Valley Water Directorate (1,560-1,433 rkm)

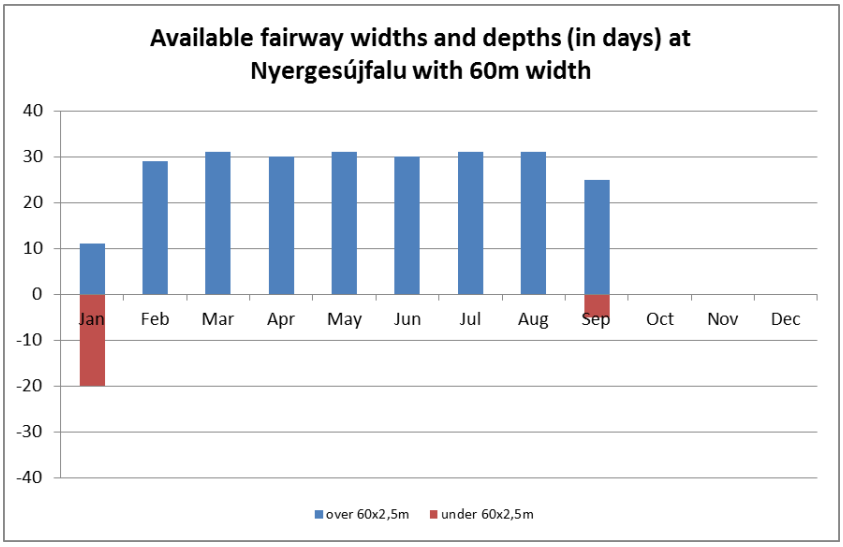
6.1 HU | Status report on main critical locations 2012 – Sept 2016

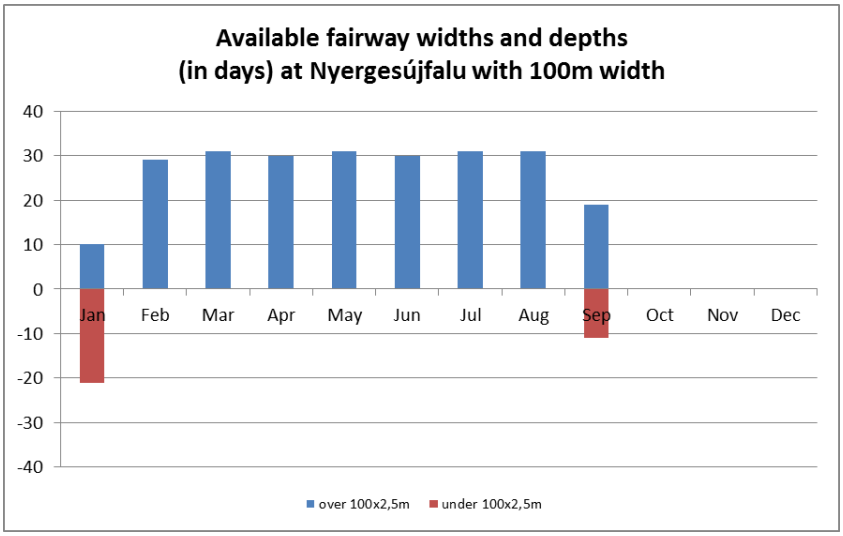
Number of days with fairway depths > 2.5m on main critical locations (as identified by the Danube waterway users in a survey by PA1a concluded in December 2014)

1,811 - 1,708 rkm

Critical location	2012	2013	2014	2015	Jan-Sept 2016
Nyergesújfalu critical location with **60 meters** wide fairway	304	314	307	244	249
Nyergesújfalu critical location with **100 meters** wide fairway	286	304	256	213	252

Fairway width (range of values accounts for different curve radii): 60 to 100 m in Slovakia and Slovak - Hungarian border section (Nyergesújfalu) based on Fairway Rehabilitation and Maintenance Master Plan.





1,708 - 1,560 rkm

Number of days with fairway depths > 2.5m on main critical locations

Critical location	2012	2013	2014	2015	Jan-Sept 2016
Kisapostag critical location with **80 meters** wide fairway	287	284	246	224	248
Göd critical location with **80 meters** wide fairway	287	284	286	208	246
Dömös alsó critical location with **120 meters** wide fairway	312	304	264	205	239
Budafok critical location with **60 meters** wide fairway	318	308	319	229	246

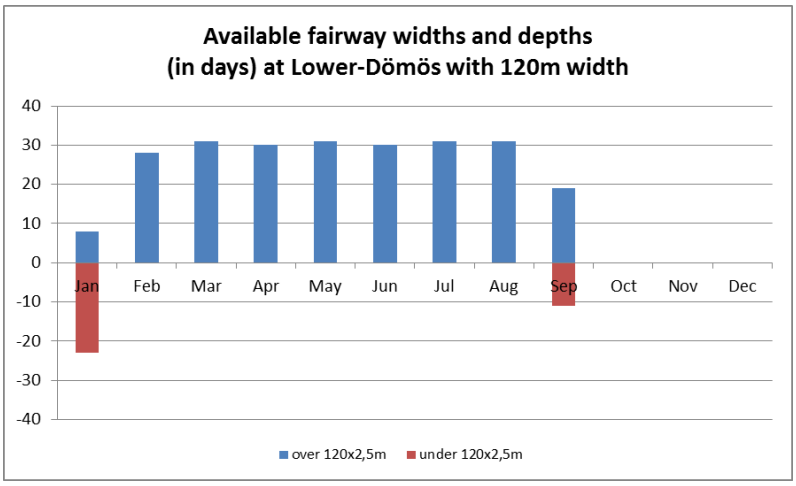
Fairway width (range of values accounts for different curve radii): 80 to 120 m in Hungarian Danube (rkm 1708-1433) section based on Fairway Rehabilitation and Maintenance Master Plan.

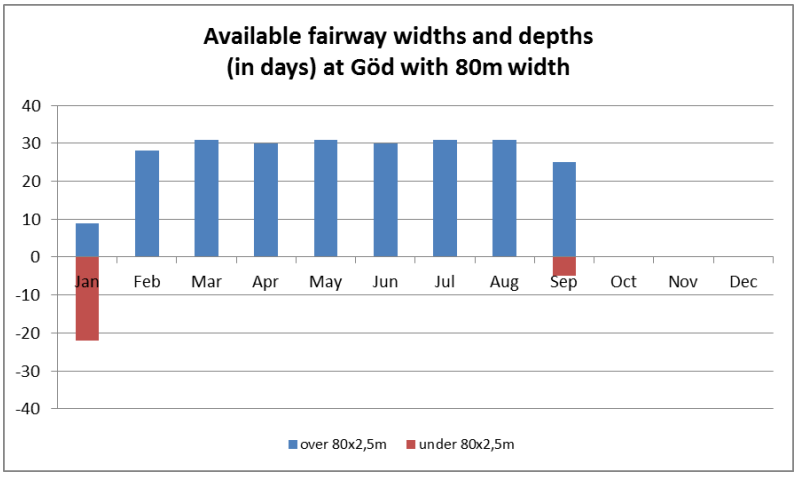
Due the annual changes of water discharge and riverbed the most critical section at KDVVIZIG area is not a given ford and also shallow section parameters could change within a year according to our latest reverbed survey.

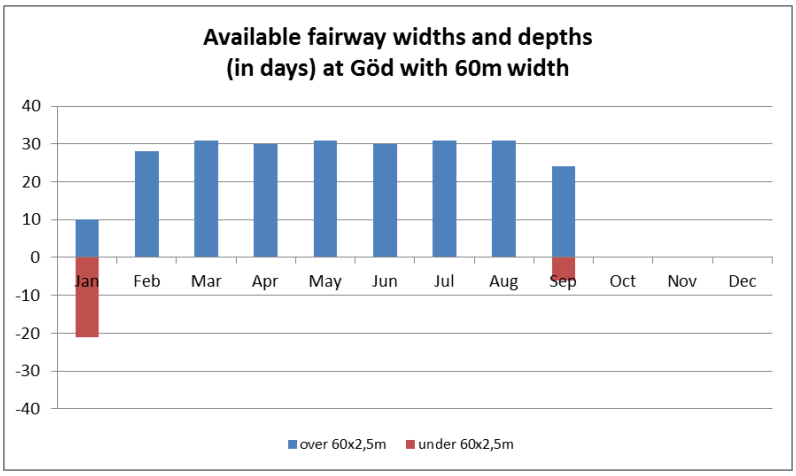
The critical location Budafok, mentioned by the Danube users in 2014 to be one of the main critical sections, has never been the worst section in terms of depth, but is considered critical because of limited width, which is 60 meters.

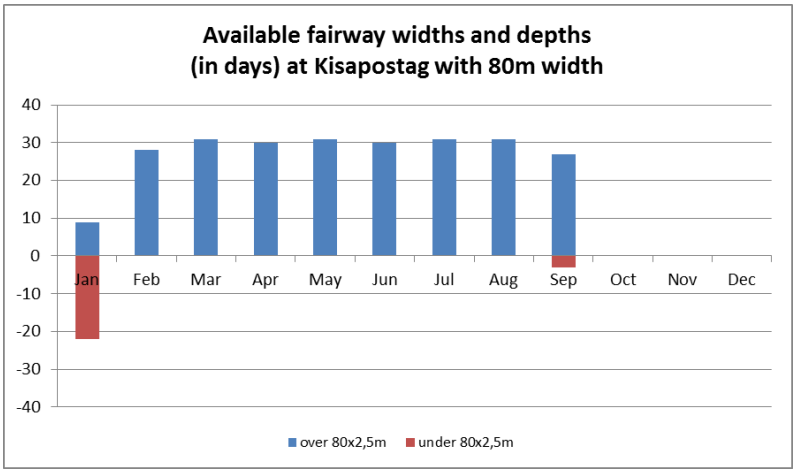
In the middle of September last year, due to changes in the riverbed we changed Göd section depth parameters (it became better), so in respect of the full year of 2015 lower-Dömös - rocky bottomed ford become the most critical section of KDVVIZIG.

As it is probable that further critical locations arise (in addition to the ones mentioned in the table), these will be reported in the text.







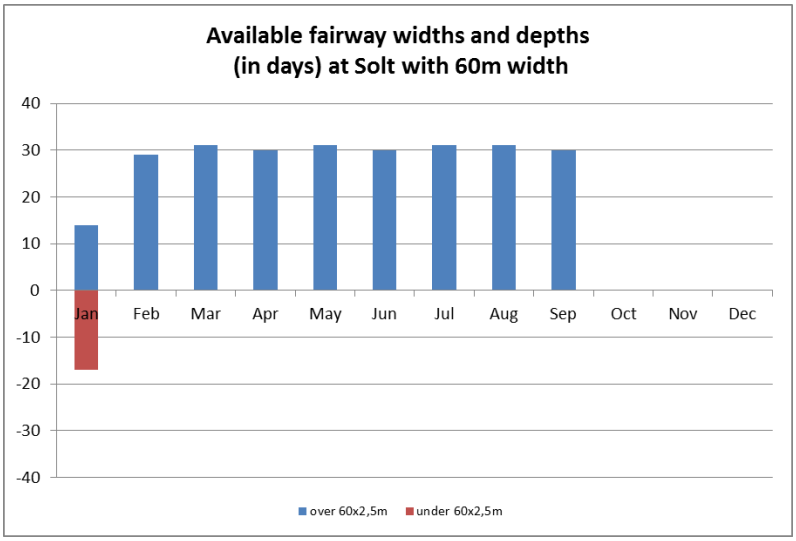


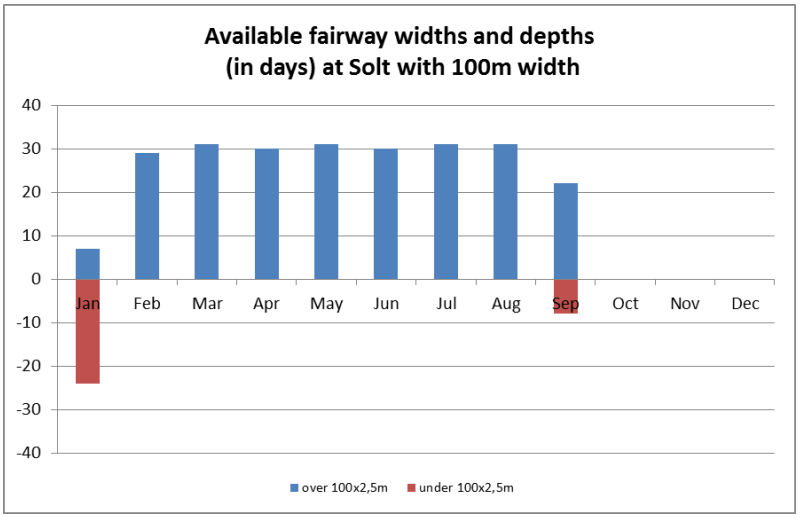
From January until September 2016 a min. fairway depth of 2.5 m was available in Middle-Danube section for 239 days/274 days (~87%). Water levels dropped in September.

1,560 - 1,433 rkm

Number of days with fairway depths > 2.5m on main critical locations

Critical location	2012	2013	2014	2015	Jan-Sept 2016
Solt critical location with **60 meters** wide fairway	365	365	360	277	257
Solt critical location with **100 meters** wide fairway	293	318	232	210	242





6.2 HU | Hydrological conditions on main critical locations 2012 - Sept 2016

Number of days with flow discharge above multiannual average flow discharge for the main critical locations:

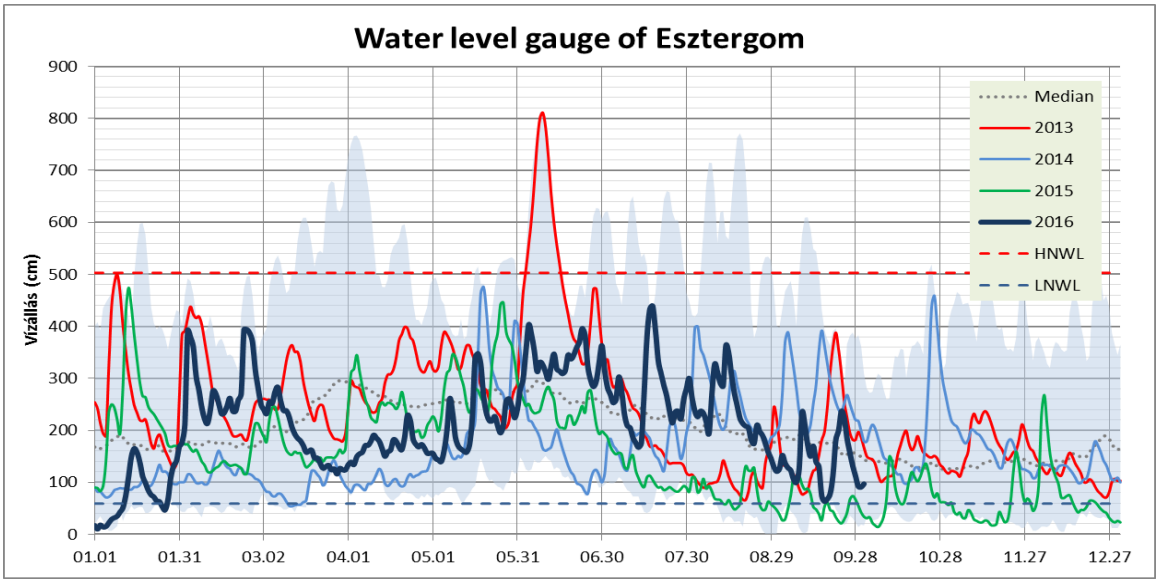
Critical location	Reference gauges	No. of days ≥ multiannual average flow discharge (m^3/s)				
		2012	2013	2014	2015	Jan-Sept 2016
Nyergesújfalu	Esztergom	20	82	26	86	36
Dömös-alsó	Nagymaros*	185	207	114	123	150
Göd	Budapest	171	194	107	111	140
Kisapostag	Dunaföldvár	179	194	107	188	146
Solt	Dunaföldvár	273	287	209	188	223

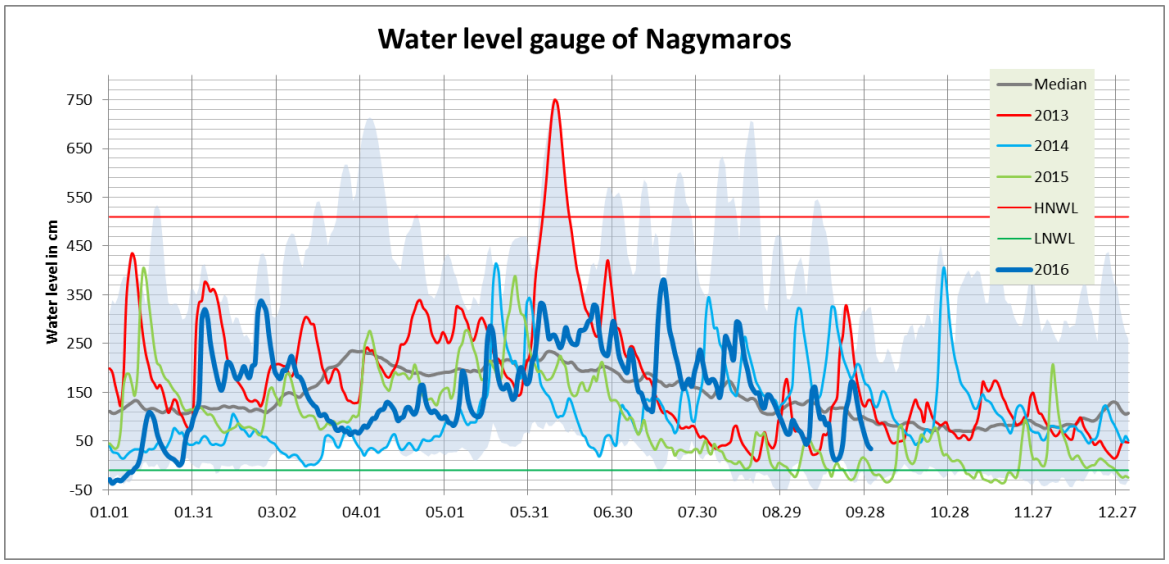
* before 01.11.2015 the reference location was Budapest

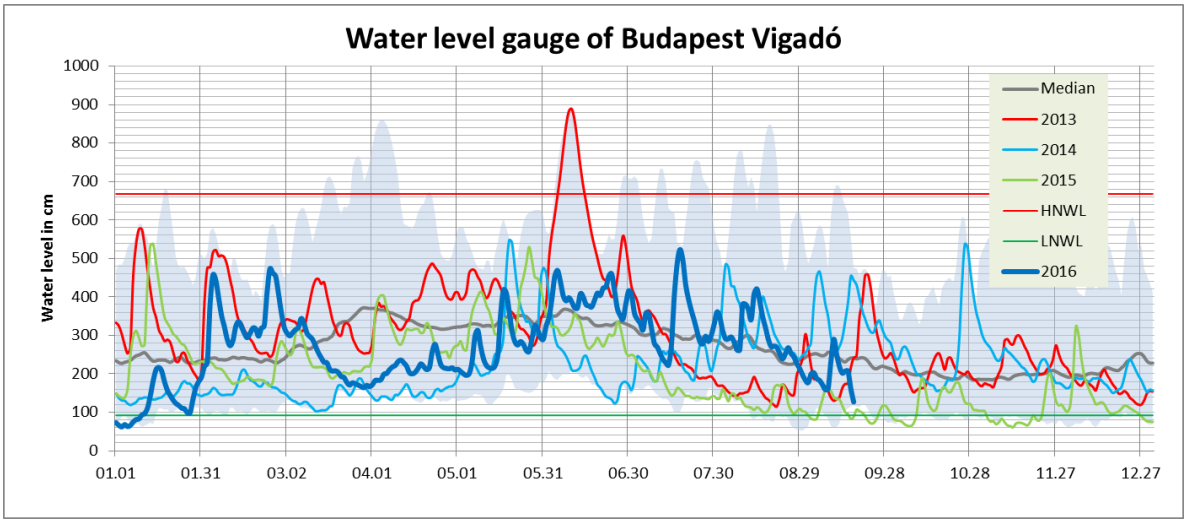
6.3 HU | Water level information on main critical locations 2012 - 2015

Critical location	Reference gauges	No of days ≥ LNWL				
		2012	2013	2014	2015	Jan-Sept 2016
Nyergesújfalu	Esztergom	366	365	360	294	261
Dömös-alsó	Nagymaros	363	365	365	322	264
Göd	Budapest	366	364	357	320	264
Kisapostag	Dunaföldvár	365	364	357	268	254
Solt	Dunaföldvár	366	364	358	270	254

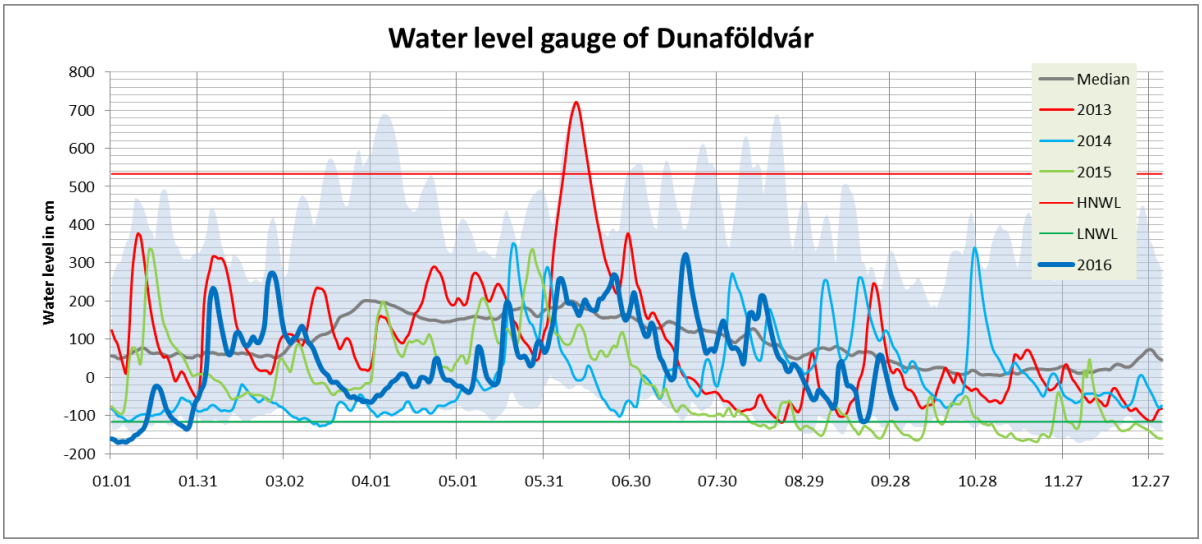
In hydrological terms, the years 2016 saw good fairway conditions from winter time to summer's end along the free-flowing sections of the Hungarian Danube. Only in January was a low-water period, since then navigation was almost possible with 2,5 meter shipdepth.







The Nagymaros gauge refers to Dömös and the while Budapest gauge to Budafok.



6.4 HU | Key issues and related activities Jan-Sept 2016

Related to the key issues illustrated in the Fairway Rehabilitation and Maintenance Master Plan (version: December 2014):

	Key issues	*Need for action*	*Activities performed Jan-Sept 2016*
HU 01	Level of detail of monitoring data is suboptimal for exact planning	Support acquisition of up-to-date multi-beam sounding equipment and vessels	Market research, preparation of the technical specification of multi-beam sounding equipment and vessels within FAIRway CEF project.

HU 02	Old monitoring equipment and fleet (related to fairway marking)	Support acquisition of up-to-date vessels and maintenance-free buoys that make marking more cost-effective	Preparation of the technical specification of marking vessel multi-beam and patrol boats within HUMARK CEF project
HU 03	Integration of updated fairway depths data in the IENC	Support skippers with continuously updated charts	Due to RSOE CEF project progress, contract has been made and work has started

6.5 HU | Review of rehabilitation and maintenance activities Jan – Sept 2016

The following activities relate to all critical locations as identified in the Rehabilitation and Maintenance Master Plan (version December 2014):

Riverbed surveying activities Jan – Sept 2016

River-km (from-to)	Frequency of surveying	Type of survey (single/multi beam)
1811 – 1794	1	single beam
1794 – 1791	2	single beam
1791 - 1749	1	single beam
1708-1657	1	multi beam
1433 - 1560	1	single beam

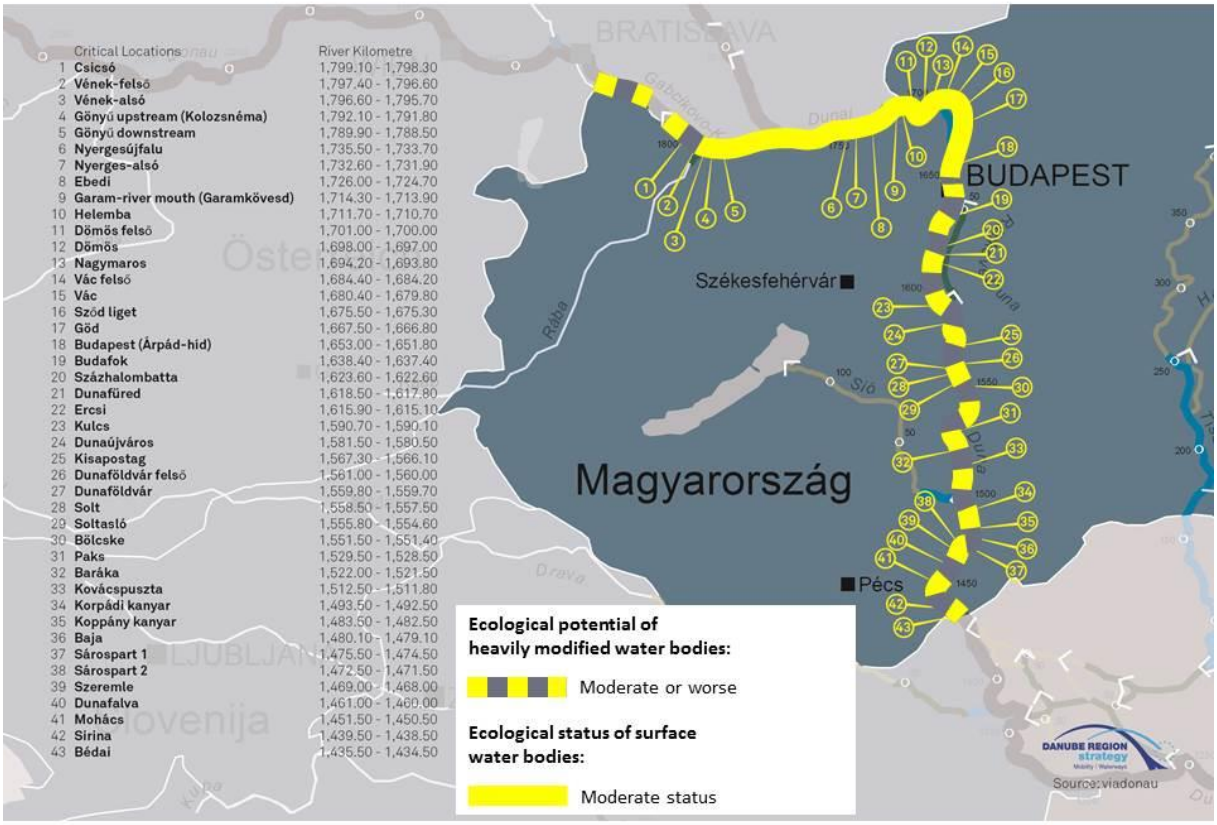
Dredging activities Jan – Sept 2016

No dredging was done for for commercial navigation in 2016.

6.6 HU | Summary of current ecological status and environmental impacts

The Hungarian section of the Danube is divided in 7 sections. The main stretch of the Hungarian Danube is declared as “Heavily modified water bodies – Final Designation” according to the Water Framework Directive. The only two exceptions are above Budapest, these are designated as “Natural water bodies”.

The following map displays the ecological status and ecological potential of the Hungarian Danube – according to the Danube River Basin Management Plan/Update 2015 – against the background of the critical navigation locations in Hungary.



(*Source: draft Hungarian NRBM Plan – Update 2015*)

The ecological status of the two natural water bodies is moderate; the good ecological status is estimated to be achievable in 2027. The designation as heavily modified water body of main parts of the Danube is mainly attributed to bank revetment, which was supported by biological elements. The good ecological potential is estimated to be achieved as follows: in 2021 1 pc, in 2027 2 pc's and after 2027 2pc's. For the heavily modified water bodies measures are to be implemented in order to achieve good ecological potential

Measures to improve environmental conditions

Between 2009 and 2015 several measures have been taken to achieve the better ecological status/potential: improving drinking water quality, improving wastewater collection and treatment, reconnecting wetlands/floodplains.

As explained by the draft National Water Management Plan for Hungary (2015):

- The section named "Danube at Szigetköz" was regulated for flood protection and navigation. In 2015 several structures were built to provide connectivity between the main riverbed and the side branches. The erosion of the riverbed is significant, it exceeds 2 meters. The decreasing water levels of the Danube and of the associated groundwater seriously affect the groundwater-dependent ecosystems and the water supply of the side

branches, and endanger the bank-filtered water resources. Because the water level decrease makes the side branches to often dry up and separate, some unique and valuable habitat will be lost.

- Due to the flood protection measures (river regulation, flood control and the associated sediment mining) the danger of the icy floods is decreased, ensuring the required size fairway and the flood protection structures protect the flood free areas at the lower Hungarian Danube section named “Danube between Sió outfall and state border”.

Because of the riverbed morphology alterations and the fords the required fairway parameters cannot be guaranteed at the section named “Danube between Gönyű and Szob”. There are 10 fords and 7 narrow sections according to the 2013 river survey. The measures to improve the navigability have to be in line with the other river users’ interest and to keep or improve the good ecological status – as on objective of the integrated river management. For the Danube as protected ecological corridor and Natura 2000 area, treatment and maintenance plans are under development or are already finished. The development of the shipping and the maintenance of the fairway are typically measures, which may restrict the aims of the Water Framework Directive. According to the Water Framework Directive, the 4.7 exemption test is necessary.

Navigation maintenance measures and environmental impacts

On the Danube fairway setting of the waterway should be established based on local characteristics and dimensions of a typical convoy given by international treaties, laws and regulations.

Based on the Danube Commission recommendations (DK/TAG 77/11) for fairway depth it is necessary to ensure a safe journey with a min. 25 dm draft depth.

In the Vienna-Belgrade section (1921.05 to 1170.00 rkm) the fairway width should be at least 120-150 m, but in justified cases (e.g. in the case of sections which are in unfavourable situation because of the geomorphological conditions, those sections which were in the focus of the general assembly of the Danube Commission when issuing decision no. DK/TAG 69/18) the reduction of the minimum fairway width is allowed if the safety of navigation is ensured.

Maintenance works are executed in the framework of Act. No. XLII of 2000 on water transport and regulation No. 17/2002. of the minister for environment and water. According to the regulation, fairway maintenance activity shall be based on activity plan, which is prepared by the waterway maintainer each year by the end of March, and has to be approved by the competent regional water authority.

By the end of 2013 a permit was obtained for carrying out fairway marking activities of the Danube section 1811-1708 rkm.

6.7 HU | Budget status 2015 – September 2016

Investments taken for FRMMP implementation 2014 – September 2016

Need Areas	Required additional investment 2014 – 2020 according to FRMMP	Investment cost secured by state or other co-financing 2015 – 2020	(% thereof EU co-financed)	Remaining financing gap - Investments according to FRMMP
Minimum fairway parameters (dredging)	150.000	6.200.000	5.270.000	
Surveying of the riverbed	749.700	2.940.000	2.499.000	
Water level gauges	150.000	1.500.000	1.275.000	
Marking of the fairway	3.187.000	8.675.000	7.373.750	
Availability of locks / lock chambers	n/a		0	
Information on water levels and forecasts	50.000	10.000	8.500	40.000
Information on fairwaydepths	0	1.220.000	1.037.000	
Information on markingplans	47.000	620.000	527.000	
Meteorological information	0	0	0	
Other needs	0	1.016.397	863.937	
Sum (Euro)	**4.333.700**	**22.181.397**	**18.854.187**	

Operational expenditures for current activity 2016 and budget needs 2017

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	0	320.000	0	320.000
Surveying of the riverbed	110.000	122.000	92.000	30.000
Water level gauges	13.000	14.000	11.500	2.500
Marking of the fairway	580.000	620.000	520.000	100.000
Availability of locks / lock chambers	0	0	0	0
Information on water levels and forecasts	50.000	50.000	50.000	0
Information on fairway depths	10.000	10.000	10.000	0

Information on marking plans	20.000	20.000	20.000	0
Meteorological information	0	0	0	0
Other needs	0	0	0	0
Sum (Euro)	783.000	1.156.000	703.500	452.500

6.8 HU | Outlook: actions, milestones and funding sources

HU 01: Level of detail of monitoring data		
Planned activities:	Purchasing multi-beam sounding equipment and surveying vessel within FAIRway project	
Current shortcomings:	Currently, there are no shortcomings identified	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	not relevant
	Which measures are taken to mitigate these impacts?	not relevant
	Is water status still expected to deteriorate?	not relevant
Possible funding:	CEF 85%, National budget 15% Action no. 2014-EU-TMC-0231-S	
Next steps:	- Signature of the Subsidy Contract between Hungarian Ministry of National development as CEF Beneficiary and NIF and OVF as Implementing Bodies, which provides the necessary financing to the implementation and regulates in detail the tasks, roles, duties, responsibilities, deadlines for the project implementation. - Publication of the public procurement for multi-beam sounding equipment and surveying vessel - Signed contract for multi-beam sounding equipment and surveying vessel (start of measurements)	31.10.2016 30.12.2016 31.03.2017
HU 02: Old monitoring equipment and fleet (related to fairway marking)		
Planned activities:	Purchasing equipment within national CEF project called "*Improving fairway marking on the Hungarian section of the Danube in the Rhine-Danube corridor*" • Fairway marking vessels - 3 pcs • High-speed patrol boats - 3 pcs • Intelligent light buoys - 115 pcs • New floating unlighted buoys - 210 pcs • Light bank markers - 55 pcs • New bank marks and navigation control marks - 300 pcs • New river km marks - 400 pcs	
Current shortcomings:	Missing agreement of the Subsidy Contract between Hungarian Ministry of National development as CEF Beneficiary and NIF and OVF as Implementing Bodies.	
Environmental relevance of planned	What are the main expected environmental impacts?	not relevant
	Which measures are taken to mitigate these impacts?	not relevant

activities:	Is water status still expected to deteriorate?	not relevant
Possible funding:	CEF 85%, National budget 15% Action no. 2014-HU-TMC-0605-W	
Next steps:	- Signature of the Subsidy Contract between Hungarian Ministry of National development as CEF Beneficiary and NIF and OVF as Implementing Bodies, which provides the necessary financing to the implementation and regulates in detail the tasks, roles, duties, responsibilities, deadlines for the project implementation - Publication of the public procurement for the marking vessels and patrol boat - Signed contract for the marking vessels and patrol boat	31.10.2016 30.12.2016 31.03.2017
HU 03: Integration of fairway depths data in the IENC		
Planned activities:	Develop v2.3 format iENC with updated bathymetric data	
Current shortcomings:	Currently, there are no shortcomings identified	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	not relevant
	Which measures are taken to mitigate these impacts?	not relevant
	Is water status still expected to deteriorate?	not relevant
Possible funding:	CEF 50%, National budget 50% Action no. 2014-HU-TM-0619-W	
Next steps:	- Signature of the works contract for upgrading of inland ECDIS charts (complying with 909/2013 Commission Implementing Regulation) in iENC v2.3 format - Deliver 2016 complex riverbed survey result of 1811 – 1433 rkm and all relevant data to the contractor - Electronic charts available for downloading on the National Transport Authority website and on the PannonRIS website	31.10.2016 31.01.2017 30.09.2017

7 Croatia

AVP - Agency for Inland Waterways (within the Ministry of Maritime Affairs, Transport and Infrastructure) is responsible for fairway maintenance, rehabilitation and upgrade.

7.1 HR | Status report on main critical locations 2012 – Sept 2016

Number of days with fairway depths > 2.5m on main critical locations for a fairway width of 100m

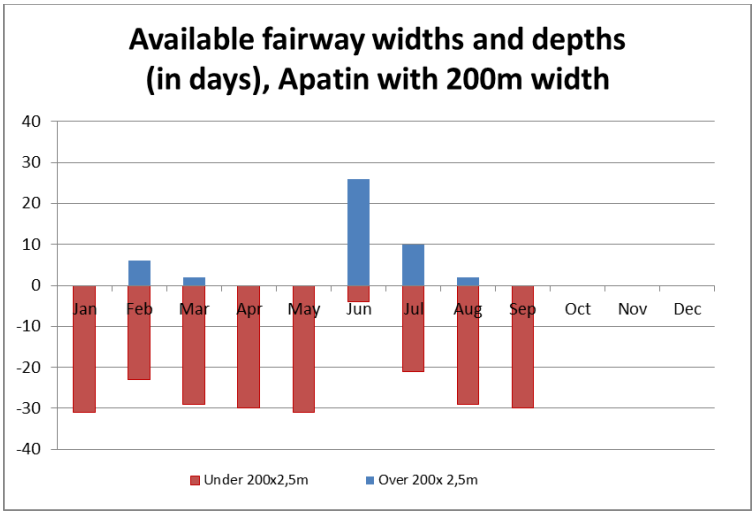
Danube

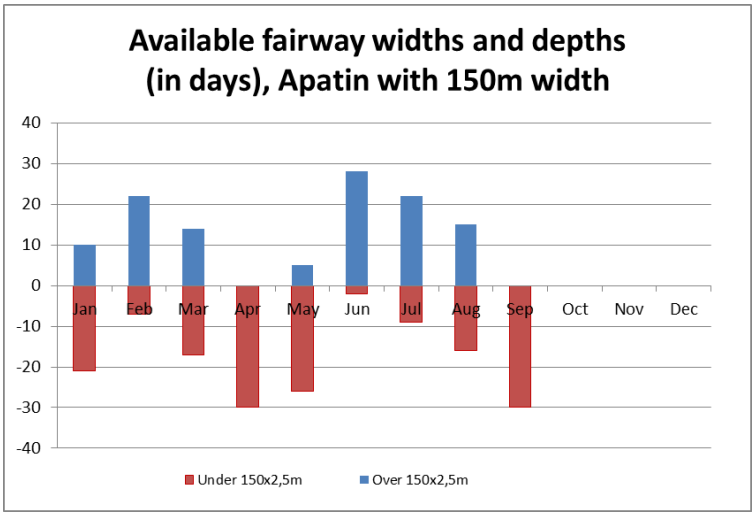
Critical location	2012	2013	2014	2015	Jan-Sept 2016
Apatin sector	366	365	365	365	274

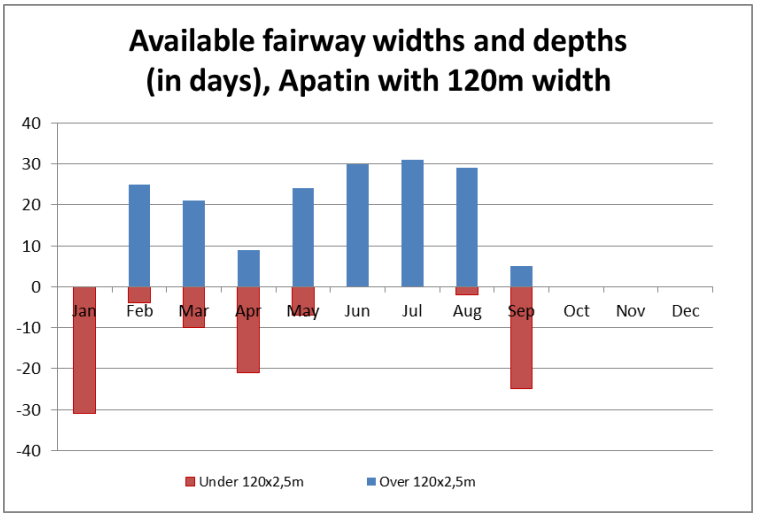
The Danube stretch in Croatia is characterized by sufficient depths but, due to river morphology (large number of sandbars and islands), the achieved fairway width varies. The table below shows the number of days related to the achieved fairway width.

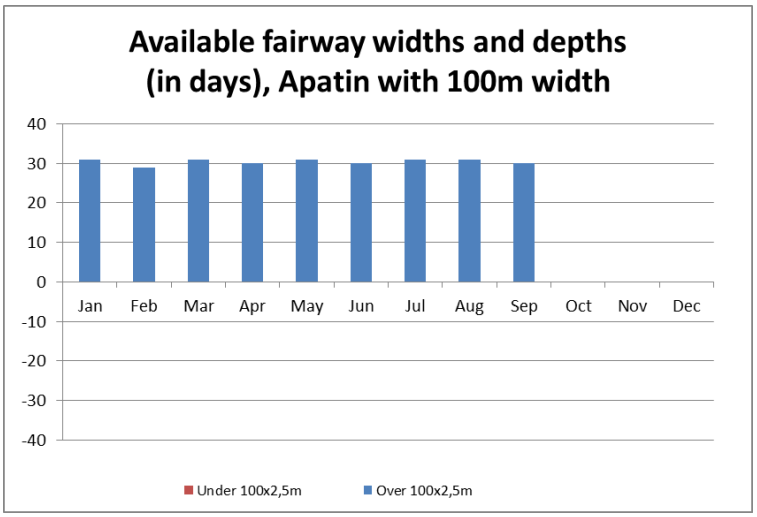
Number of days below 200/150/120m width (and depth over 2.5m)

Crtitical sector in 2015	200 x 2,5	150 x 2,5	120 x 2,5	100 x 2,5
Apatin	228	158	100	0




Available fairway widths and depths (in days), Apatin with 150m width
40
30
20
10
0
-10
-20
-30
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Under 150x2,5m
Over 150x2,5m


Available fairway widths and depths (in days), Apatin with 120m width
40
30
20
10
0
-10
-20
-30
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Under 120x2,5m
Over 120x2,5m


Available fairway widths and depths (in days), Apatin with 100m width
40
30
20
10
0
-10
-20
-30
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Under 100x2,5m
Over 100x2,5m

7.2 HR | Hydrological conditions on main critical locations 2012 – Sept 2016

Number of days with flow discharge above multiannual average flow discharge for the main critical locations.

Danube

Critical location	Reference gauges	No. of days ≥ multiannual average flow discharge (m³/s)				
		2012	2013	2014	2015	Jan-Sept 2016
Apatin*	Apatin	151	217	134	205	230

* Data provided by PLOVPUT

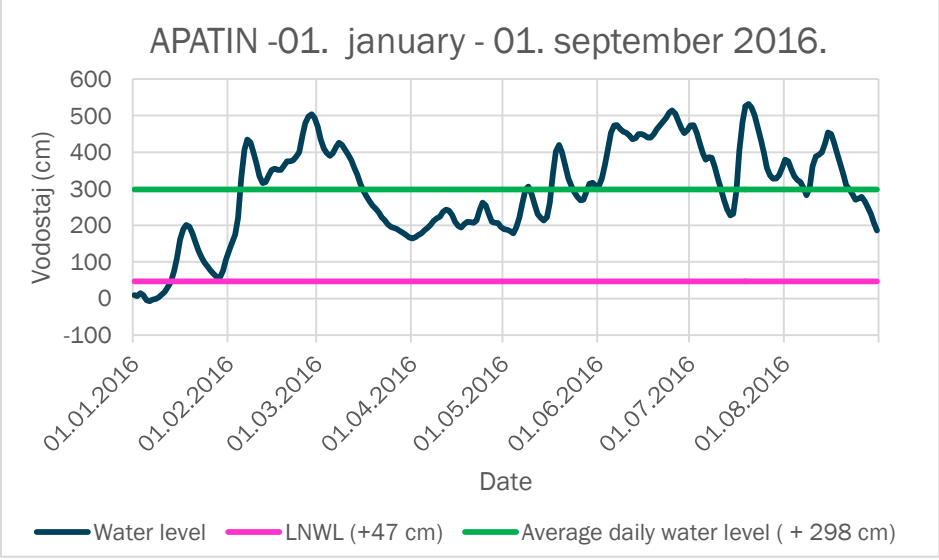
7.3 HR | Water level information on main critical locations 2012 – Sept 2016

Number of days with water levels above Low Navigable Water Level In the period January - September 2016*:

Danube

Critical location	Reference gauges	No. of days ≥ LNWL				
		2012	2013	2014	2015	Jan-Sept 2016
Apatin*	Apatin	366	365	365	315	261

*Data provided by PLOVPUT



In 2016 (Jan- Sept) at the gauging station Apatin the water level under low navigable water level was present in short period in January.

7.4 HR | Key issues and related activities Jan – Sept 2016

Related to the key issues illustrated in the Fairway Rehabilitation and Maintenance Master Plan (version: December 2014):

	Key issues	*Need for action*	*Activities performed Jan – Sept 2016*
HR 01	Old monitoring fleet and equipment	Support retrofit and acquisition of up-to-date single-beam sounding equipment, software and vessels	*Start of the FAIRway Danube project – purchase of one marking vessel and one surveying vessel with single and multi-beam equipment*
HR 03	The number and the accuracy of gauging stations should be raised	Support increasing the number and quality of gauging stations	*DHMZ performed regular maintaining of existed gauging stations.* *Start of FAIRway Danube project – purchase of 4 new gauging stations and modernisation of 5 existing ones on the Danube*
HR 06	Cumbersome procurement procedures for dredging activities	Start improved and more efficient concessions procedures for Sava, drava and Danube	*Concessions procedure started in 2016 for Drava - Port*
HR 07	Not enough vessels available with AVP to provide quick reaction on needed marking interventions; equipment and vessel malfunctions	Support acquisition of modern maintenance and marking vessels	*Start of the FAIRway Danube project – purchase of one marking vessel and one surveying vessel with single and multi-beam equipment*
HR 09	The low number and the accuracy of gauging stations; non-existence of water level forecasts	Support cooperation between actors involved in water level information and increase the number of additional gauging stations	*The hydrological forecasts modelling project started in year 2014, using MIKE 11 software tools, and in cooperation with Croatian Waters (Sava river).* *Established great communication between AVP and DHMZ – start of FAIRway Danube project where the installation of (4) new gauging stations is planned together with water level forecast until 2020 on the Danube river*

7.5 HR | Review of rehabilitation and maintenance activities Jan - Sept 2016

The following activities relate to all critical locations as identified in the Rehabilitation and Maintenance Master Plan (version December 2014).

Riverbed surveying activities Jan – Sept 2016

The river bed surveying is done according to an annual surveying plan. This plan consists of annual surveying of the whole Danube sector (single-beam) with main surveying of critical locations and waterway objects on which the maintenance works are planned. The plan also contains surveying of fairway locations for the production of geodetic and morphological surfaces in order to update the technical documentation.

River-km (from-to)	Frequency of surveying	Type of survey (single/multibeam)
Danube 1.433,10-1295,50	1 x in 2016	Single-beam
Danube 1.433,10-1295,50	Critical sectors 1 x in 2016	Single-beam
Drava mouth: Danube 1.381,5 – 1.383,5 Drava 0 – 0,8	9 x in 2016	Single-beam
Danube, Batina 1.425 – 1.426	1 x in 2016	Single-beam
Drava 0 - 22	1 x in 2016	Single-beam
Drava 8,5 - 12	1 x in 2016	Single-beam
Drava, Port Nemetin	2 x in 2016	Single-beam
Sava rkm 552-553 rkm 540,8 - 542,3 rkm 549,2 - 550,2 rkm 552,0-556,0 rkm 559,9 - 560,7 rkm 570,0 - 577,0 rkm 580,0 - 582,0 rkm 310 – 312 rkm 374 - 382	1 x in 2016	Single-beam

Fairway relocation activities Jan – Sept 2016

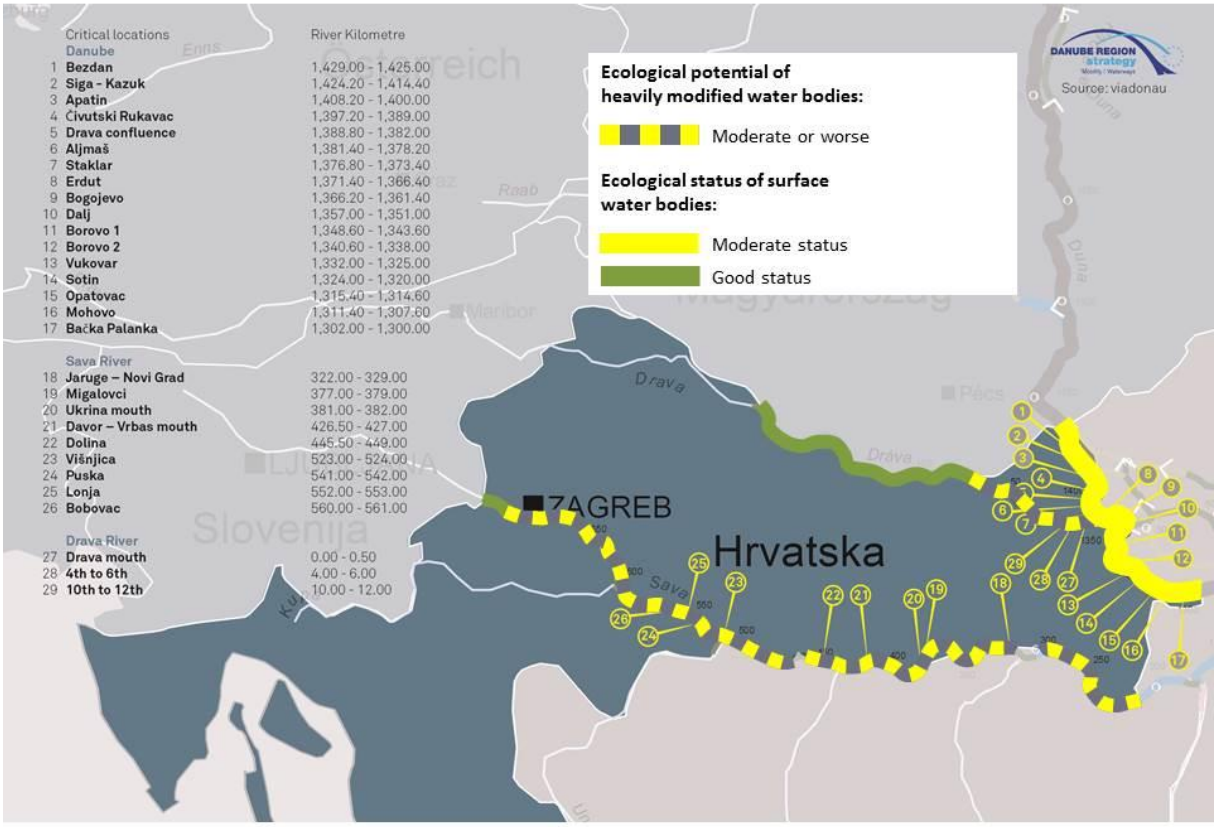
None – during 2016, the situation on the whole Danube stretch was stable and there was no reallocation of the fairway as the most favourable depth was held throughout the year within the fairway limits of 100m.

Dredging activities Jan – Sept 2016

During the period Jan-Sept 2016 there was no dredging for commercial navigation.

7.6 HR | Summary of current ecological status and environmental impacts

The following map displays the ecological status and ecological potential of the Croatian Danube – according to the Danube River Basin Management Plan/Update 2015 – against the background of the critical navigation locations in Croatia.

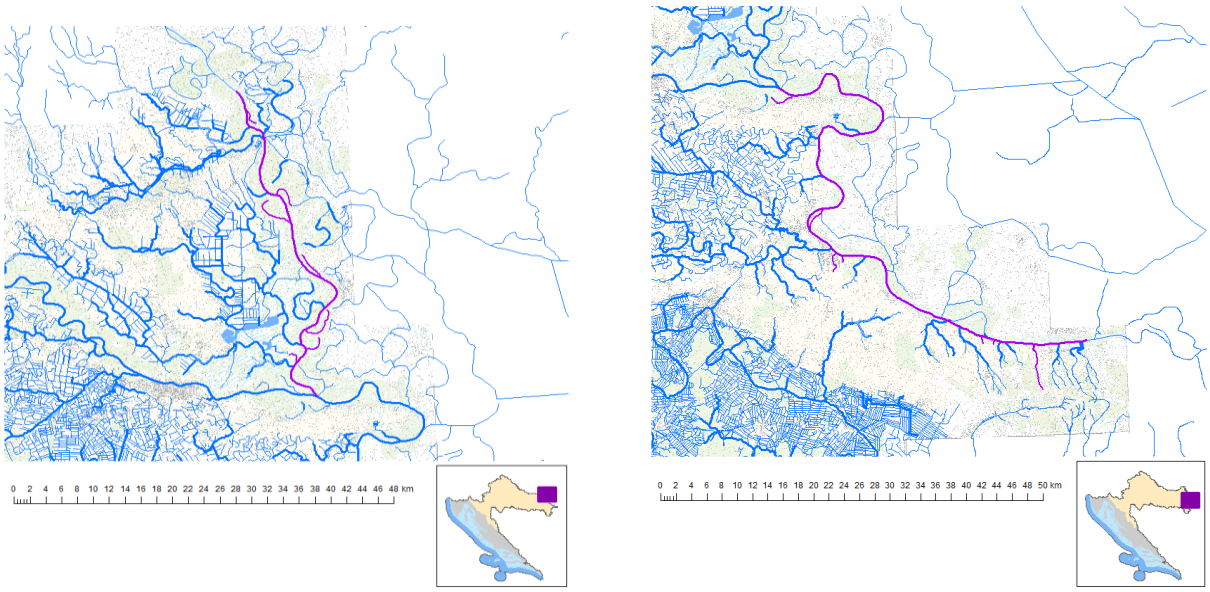


Ecological status and ecological potential of surface water bodies
(*Source: DRBM Plan – Update 2015*)

According to the River Basin Management Plan (RBMP) 2016-2021, water bodies on the Danube River in Croatia aren't designated as HMWBs and there are no hydropower plants built there.

In the RBMP 2016-2021, the status of water bodies on the Danube River is assessed according to the Regulation on water quality standard (official gazette 73/2013) and based on the impacts and pressures analysis.

According to the Regulation, the ecological status of the water body (from the Croatian-Hungarian border to the Drava-Danube confluence) is assessed as moderate, and its chemical status as good. Downstream of the Drava-Danube confluence to the Croatian-Serbian border, both the ecological and chemical statuses of the water body are assessed as good.



Water bodies on the Danube River in Croatia

Measures to improve environmental conditions

Instruments to control hydromorphological pressures to water bodies are provided in the Water Act and the Environmental Protection Act.

Hydromorphological modifications to the water bodies due to physical interventions (projects) that affect the water regime are controlled by issuing water rights acts or binding water rights opinions as part of integrated environmental protection requirements, which precedes the issuance of a location permit or some other form of project approval. Compliance with the specified requirements is controlled during project implementation.

Comprehensive control of the impacts of development plans, programmes and projects on environmental quality, including impacts on the aquatic environment, is regulated by the Environmental Protection Act.

The lack of appropriate hydromorphological and biological monitoring significantly restricts the possibility to prepare an elaborate programme of measures to control and reduce hydromorphological pressures to water bodies.

Due to very limited data, the programme of measures for the period 2016-2021 includes activities corresponding to a temporary character of designating artificial and heavily modified water bodies (no regret approach).

Navigation maintenance measures and environmental impacts

Maintenance works are executed in the framework of navigation law (“Zakon o plovidbi i lukama unutarnjih voda”, official gazette nr. 109/2007, 132/2007, 51A/2013 and 152/2014), Regulation on technical maintenance of waterways (“Pravilnik o tehničkom održavanju vodnih putova”, official gazette nr. 62/2009 and 136/2012) and in accordance with the applicable technical regulations in the field of construction, spatial planning and environmental protection, and water management relating to maintenance works on constructions which are used for the improvement of navigation conditions.

The Annual Maintenance Program is prepared based on the maintenance studies, annual and detailed surveying data, information about the changes in the waterway and data about the execution of works from previous years. When the Program is adopted the Assessment Study of main impact for the ecological network (which is done by official experts on nature conservation and water ecology) must be done towards Ministry of Environment and Nature Protection. Assessment Study contains proposed measures to mitigate adverse impacts of planned activities and program for monitoring and reporting of planned activities. If the proposed mitigation measures/alternatives are eliminating negative effects, the competent authority (Ministry of Environment and Nature Protection or Department of Spatial Planning, Environment and Nature Protection in competent county) issues their conclusions and approval of the procedure. Based on given conclusions the Water conditions (in accordance with Water law) are issued by the Croatian Waters.

By the end of 2015 two Assessment studies are in process for the Sava and Drava rivers. Currently on the Danube there is no need for dredging activities. For the works in Batina section (rkm 1425- 1425+900) required environmental measures are provided by Department of Spatial Planning, Environment and Nature Protection in Osijek-Baranja County and they are in force until 13.7.2017.

7.7 HR | Budget status 2015 – September 2016

Investments taken for FRMMP implementation 2014 – September 2016

Need Area	Required additional investment 2014 – 2020 according to FRMMP	Investment cost secured by state or other co-financing 2015 – 2020	(% thereof EU co-financed)	Remaining financing gap - Investments according to FRMMP
Minimum fairway parameters (dredging)	1.000.000,00	280.000		720.000,00
Surveying of the riverbed	241.000,00	464.000	93%	
Water level gauges	57.000,00	85.000		
Marking of the fairway	3.230.000,00	1.135.000	88%	2.095.000,00
Availability of locks / lock chambers	-	-		
Information on water levels and forecasts	0,00	185.000		
Information on fairwaydepths	60.000,00			60.000,00
Information on markingplans	0,00			
Meteorologicalinformation	0,00			
Other needs	0,00			
Sum (Euro)	**4.588.000,00**	**2.149.000,00**	**67%**	**2.875.000,00**

Operational expenditures for current activity 2016 and budget needs 2017

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	280.000,00		National budget - Only temporary financing for the first three months in 2017	
Surveying of the riverbed	31.000,00	50.000,00		
Water level gauges	10.000,00	10.000,00		
Marking of the fairway	133.000,00	500.000,00		
Availability of locks / lock chambers	-	-		
Information on water levels and forecasts	30.000,00	30.000,00		
Information on fairway depths				
Information on marking plans				
Meteorological information	5.000,00	5.000,00		
Other needs				
Sum (Euro)	**489.000,00**	**595.000,00**		

7.8 HR | Outlook: actions, milestones and funding sources

HR 01: Old monitoring fleet and equipment		
Planned activities:	Preparation of projects for purchasing needed equipment and vessels (financed from EU funds)	
Current shortcomings:	Lack of qualified staff needed for project implementation, not enough budget	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: EU funds/national budget	
Next steps:	Application for EU co-financing	Until 2020
HR 02: Insufficient number of skilled staff		
Planned activities:	We are planning to have additional education of our staff in future, but still do not know exact start time	
Current shortcomings:	National restrictions of hiring new staff doe to a lack of national funds/budget for additional staff	

Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: National budget	
Next steps:	We hope that the purchase of new equipment/vessels will open the possibility of hiring new workers and additional education	tbd
HR 03: The number and the accuracy of gauging stations should be raised		
Planned activities:	DHMZ plans the activities for the whole hydrological stations network on yearly basis. Within the FAIRway project it is planned installation of 4 new gauging stations and modernisation of existing 5 gauging stations	
Current shortcomings:	The uncertainty of funding	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: EU funds/national budget	
Next steps:	To plan the achievable activities in year 2017, depending on available funding	Until mid 2017
HR 04: Insufficient and hardly predictable financial backings		
Planned activities:	Planning of projects that could help us provide additional funds for waterway maintenance	
Current shortcomings:	Insufficient communication between all relevant institutions	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: EU funds/national budget	
Next steps:	Planning of projects that could help us provide additional funds for waterway maintenance	tbd
HR 05: Deterioration of equipment of dredging companies		
Planned activities:	No planned activities	
Current shortcomings:	Not enough funds/budget	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable

	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: EU funds/privat budget	
Next steps:	N/A	tbd
HR 06: Cumbersome procurement procedures for dredging activities		
Planned activities:	Starting a concessions - waterway will be maintained more efficiently – no more time waste on a time consuming procedures	
Current shortcomings:	Time consuming procedures	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	Not applicable
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: national budget	
Next steps:	Concession procedures for Sava, Drava and Danube	Concession for Drava – Port Nemetin started in 2016
HR 07: Not enough vessels available with AVP to provide quick reaction on needed marking interventions; equipment and vessel malfunctions		
Planned activities:	Preparation of projects for purchasing needed equipment and vessels (financed from EU funds)	
Current shortcomings:	Lack of staff needed to research the current needs, not enough budget	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: EU funds/national budget	
Next steps:	Purchase of equipment within the FAIRway project	Until 2020
HR 08: Inefficient procedures, suboptimal link between surveying and marking department, insufficient data storage and analysis facilities		
Planned activities:	The part of needs will be resolved within the FAIRway project – IT tool that will be developed within the project- waterway asset management system	
Current shortcomings:	With enough funds for future operation we would be able to plan activities that would improve current status quo	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable

Possible funding:	Budget availability 2016/2017: EU funds/national budget	
Next steps:	Improve link between surveying and marking department using IT tool developed within FAIRway project	Until 2020
HR 09: The low number and the accuracy of gauging stations; non-existence of water level forecasts		
Planned activities:	Hydrological forecasts modelling	
Current shortcomings:	The project started with modelling the Kupa river and a part of the Sava river from Slovenian border to Sisak. The model will be expanded to Danube river	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	Not applicable
Possible funding:	Budget availability 2016/2017: The funding of the project is national at the moment, but DHMZ is going to apply for EU funds	
Next steps:	To continue with the modelling. To increase the number of gauging stations where needed	Until 2020
HR 10: River engineering measures Sotin		
Planned activities:	Construction of inline structure ant two T-groins	
Current shortcomings:	Formation of sandbar is present due to the collapse of the high river bank which causes problems in navigation.	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	Ecological study is ongoing (done by the end of 2017)
	Which measures are taken to mitigate these impacts?	Not applicable
	Is water status still expected to deteriorate?	No
Possible funding:	Budget availability 2016/2017: EU funds/national budget	
Next steps:	Application for EU co-financing	Until 2020

8 Romania

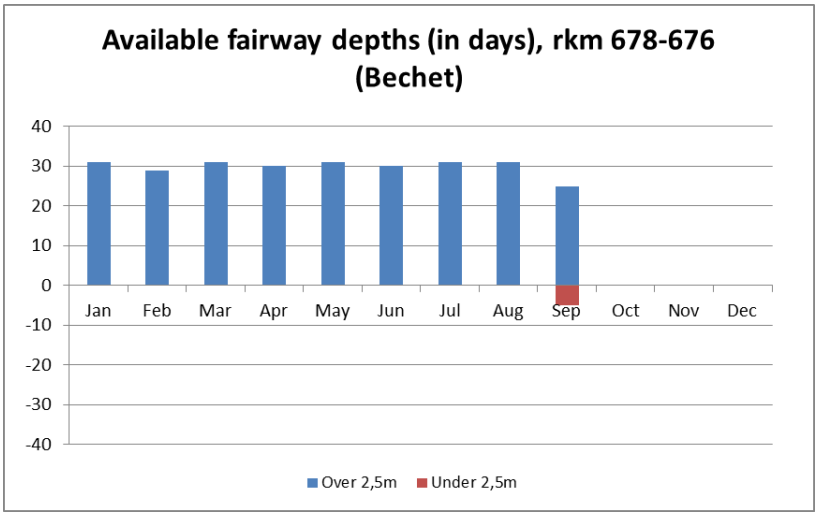
The **Administration of the Lower Danube (AFDJ)** and the **Administration of the Navigable Canals (ACN)** are responsible for fairway maintenance, rehabilitation and upgrade.

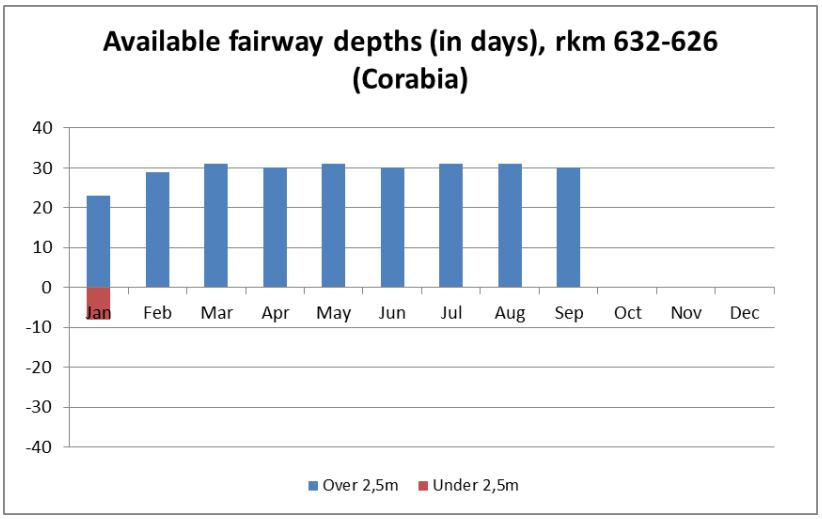
8.1 RO | Status report on main critical locations 2012 – Sept 2016

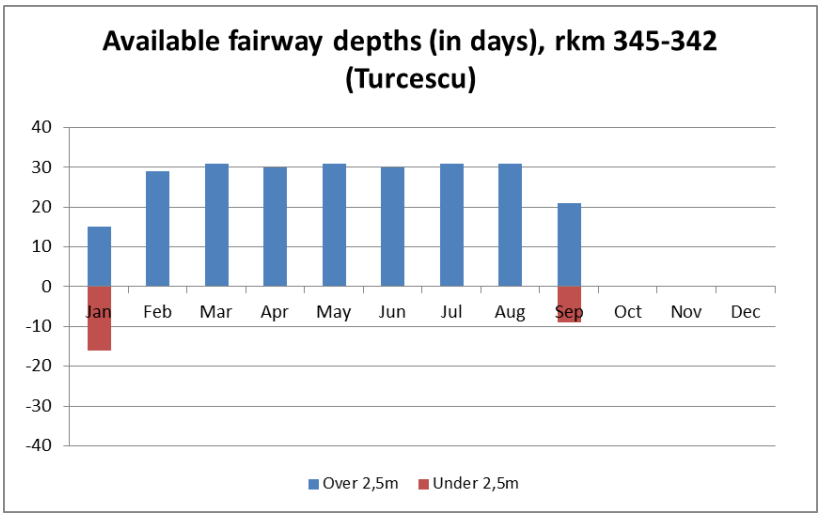
Number of days with fairway depths > 2.5m on main critical locations

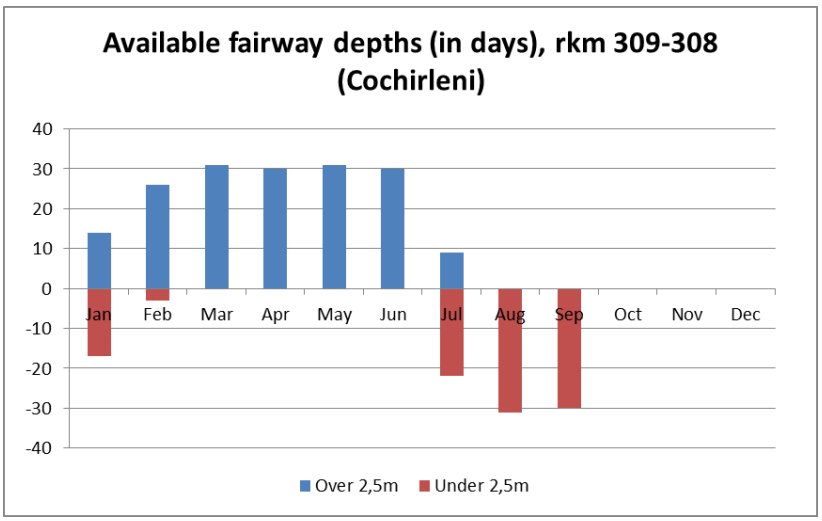
Danube

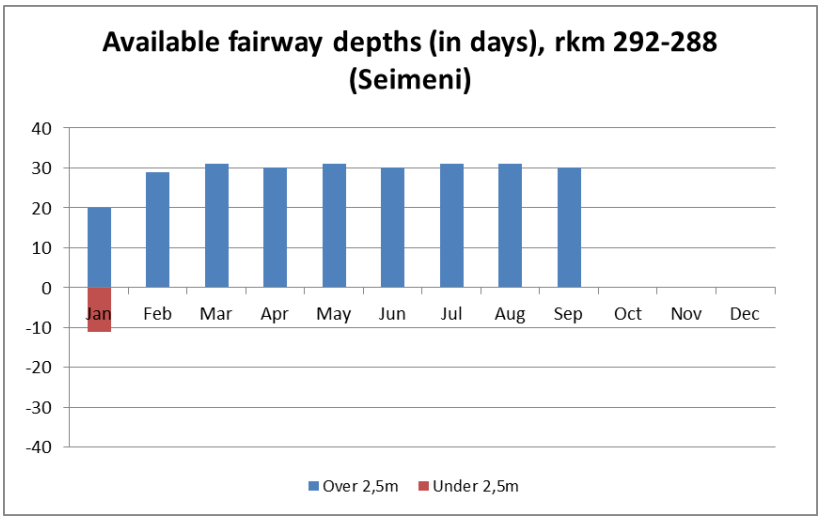
Critical location	2012	2013	2014	2015	Jan-Sept 2016
Bechet	355	327	365	265	269
Corabia	348	335	365	272	266
Turcescu	281	297	345	260	249
Cochirleni	196	234	319	236	171
Seimeni	323	329	365	336	263
Prut (depth > 7.32m)	352	333	365	308	246
Tulcea (depth > 7.32m)	351	318	365	321	263

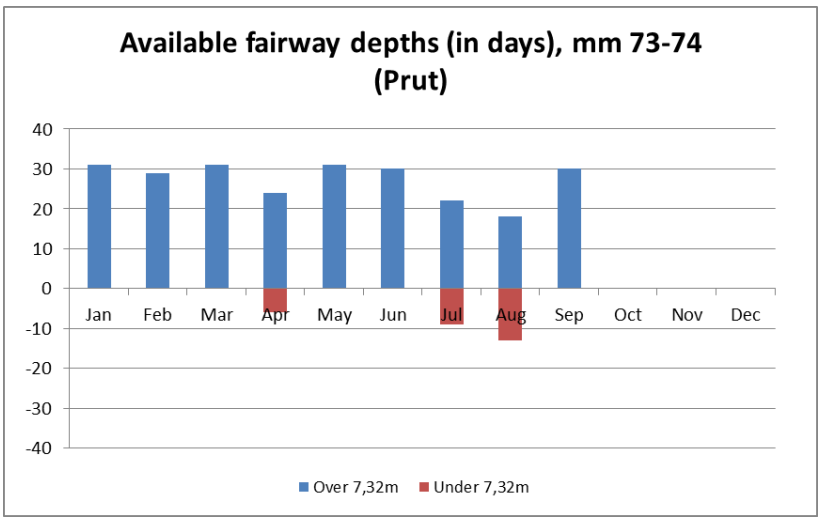


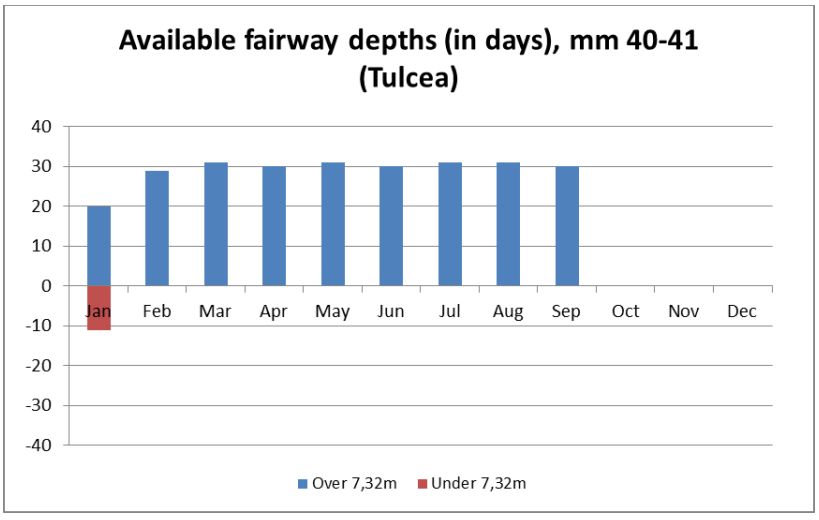

Available fairway depths (in days), rkm 632-626 (Corabia)
40
30
20
10
0
-10
-20
-30
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Over 2,5m
Under 2,5m


Available fairway depths (in days), rkm 345-342 (Turcescu)
40
30
20
10
0
-10
-20
-30
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Over 2,5m
Under 2,5m


Available fairway depths (in days), rkm 309-308 (Cochirleni)
40
30
20
10
0
-10
-20
-30
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Over 2,5m
Under 2,5m







In the period January - September 2016, a minimum fairway depth of 2.5 m was available for most of the time. In terms of levels, from January to September period is generally characterized as a period with values which favored the minimum navigation depths. Thus, at the beginning of

the year, is seen continuing low levels recorded at the end of 2015 until mid of January. After that, levels began to increase gradually. Until August 2016, the levels had values above the annual average in March touching maximum at some hydrometric stations exceeding the values carefully. Starting from September levels began to drop, but with values above the LNWL.
In these hydrological conditions in the period January-September were encountered the depths below 2.5m in: Bechet (5 days), Corabia (8 days), Turcescu (25 days), Cochirleni (83 days), Seimeni (11 days).
For maritime sector, to note, in this sector, the minimum navigation depth is 7.32m (24 feet) depths below 7.32m was encountered in Prut (28 days) and Tulcea (11 days).

Danube-Black Sea Canal
Danube Black Sea canals bottom is dredged 1 meter under the Danube river so in the years 2012-2015 fairway depths were over 2, 5 m on the Danube Black Sea canal for the entire year. Between Cernavoda and Agigea locks minimum depth is 7m which permit to maritime ships to access to Basarabi and Medgidia ports.

Critical location	2012	2013	2014	2015	Jan-Sept 2016
confluence with the Danube river km 64-65 - DBSC	365	365	365	365	274
Port Medgidia km 37- DBSC	365	365	365	365	274
Downstream Navodari lock – CPAMN	365	365	365	365	274
Port Luminita – river branch Luminita	365	365	365	365	274

Between Jan - Sept 2016 there was no restriction for navigation in the reported critical locations.

8.2 RO | Hydrological conditions on main critical locations 2012 – Sept 2016

Number of days with flow discharge above multi-annual average flow discharge for the main critical locations.

Critical location	Reference gauges	No. of days ≥ multiannual average flow discharge (m^3/s)				
		2012	2013	2014	2015	Jan-Sept 2016
Bechet	Bechet	105	211	233	134	183
Corabia	Corabia	108	171	218	127	171
Turcescu	Calarasi	137	202	236	137	174
Cochirleni	Cernavoda	51	156	199	124	162
Seimeni	Cernavoda	51	156	199	124	162

Usually the low water period is August-October, which represents 25% of the year.

Action Plan: Romania

For the period January to September 2016, the water flows recorded, had a rate of over 60% above-average values, which created conditions to ensure navigation depths. In early few days of the year, were recorded few days under the multiannual average values (which they were recorded and depths below 2.5m), after which the values grew until March when there were maximum (11.500m³/s in Bechet). From April rates began to drop until early September when rates had values below the multiannual average Thus, the number of days with values over multiannual average was: Bechet 183, Corabia 171, Calarasi 174, Cernavoda 162.

8.3 RO | Water level information on main critical locations 2012 – Sept 2016

Critical location	Reference gauges	No. of days ≥ LNWL				
		2012	2013	2014	2015	Jan-Sept 2016
Bechet	Bechet	332	329	365	277	263
Corabia	Corabia	328	325	365	258	256
Turcescu	Calarasi	319	325	365	279	257
Cochirleni	Cernavoda	331	325	365	295	265
Seimeni	Cernavoda	331	325	365	295	265
Prut	Galati	366	365	365	365	261
Tulcea	Tulcea	366	365	365	365	267

For year 2016, period from January to September, related to water levels, the recorded values were favorable for navigation conditions. From mid January to late August levels had values above the LNWL for 96% of the time, and the maximum values were recorded in March 2016. In September levels began to decrease , so in late days of the month values approaches the value of LNWL. The number of days specified in the table shows a good hydrological period.

8.4 RO | Key issues and related activities Jan – Sept 2016

Related to the key issues illustrated in the Fairway Rehabilitation and Maintenance Master Plan (version: December 2014):

Romanian Danube

	Key issues	*Need for action*	*Activities performed Jan – Sept 2016*
RO 01	Insufficient number of sounding vessels	Support acquisition of up-to-date sounding equipment to raise the coverage of surveyed areas.	*Pilot action defined within the FAIRway Danube project*

Action Plan: Romania

RO 02	Insufficient number of automatic gauging stations.	Support acquisition of additional automatic gauging stations, especially for critical sections.	*Feasibility study for rehabilitating and extending the network of hydrometric stations on the Romanian sector of Danube implemented through SOPT 2007 – 2013* *Pilot action defined within the FAIRway Danube project* *Elaboration the project proposal within the SOPT 2014-2020 for rehabilitating and extending the network of hydrometric stations on the Romanian sector of Danube*
RO 03	Lack of dredging equipment, specialized personnel and deficiency of investments in river regulation	Support acquisition of dredging equipment performance to increase the efficiency of working problem areas and the possibility of intervention at any time where it is needed	*Ensuring the enough budget for dredging works for 2016* *Implement the project for feasibility study for technical vessels including dredger on SOPT 2007 -2013* *Elaboration of the Romanian – Bulgarian Common Plan of measures necessary for 2016 including dredging activities* *Implement the SWIM project for purchasing the dredging equipment and perform the capital dredging works.* *Launch the tender procedure for purchasing the dredging equipments using funds from the budget state*
RO 04	Inefficient procedures. The documentation to draw up a contract for dredging is time consuming.	Support standardization and simplification of documentation procedures.	*Implement the SWIM project* *Elaboration the internal procedure for different type of activies*
RO 05	Lack of efficient vessels and special equipment for marking.	Support acquisition of vessels equipped with advanced machines to perform operations board assembly / disassembly floating signals.	*Implement the project for elaboration of the feasibility study elaboration for technical vessels including marking vessels on SOPT 2007 - 2013* *Defining the pilot action within the FAIRway Danube project* *Launch the tender procedure for purchasing marking vessel*
RO 06	Insufficient number of buoys and position monitoring equipment. Unavailable automated system for the transmission of information on the buoys. The disseminationofinformationcouldbeimproved.	Support acquisition of buoys and monitoring equipment. Support establishment of an automated monitoring system and improve the provision of information on fairway marks.	*Manufacturing the 80 pieces of buoys*
RO 07	Unavailable forecast for water levels.	Support establishment of a water level forecast	*Implement the project for elaboration of the feasibility study for rehabilitating and extending the network of hydrometric*

			stations on the Romanian sector of Danube - HyQ Danube project on the SOPT 2007 - 2013 *AFDJ developed a geodesic network of support within the project BORD, financed from SOPT 2007 - 2013* *Defining the pilot action within the FAIRway Danube project* *Elaboration the project proposal within the SOPT 2014 - 2020 for rehabilitating and extending the network of hydrometric stations on the Romanian sector of Danube*
RO 08	Information could be provided customer-friendly using established river information portals.	Support customer-friendly processing and dissemination of information.	*AFDJ forwarded the information to the FIS PORTAL* *AFDJ forwarded the information to the RoRIS PORTAL* *AFDJ provided fairway information on the official website:www.afdj.ro*
RO 09	Unavailable digital terrain models for shallow sections.	Support set-up of digital terrain models for shallow sections.	*Launch the tender procedure for feasibility study for FAST DANUBE project, which include the digital terrain models for entire Romanian – Bulgarian sector*
RO 10	Insufficient number and quality of weather stations.	Support improvement of meteorological information.	*Implement the project for feasibility study for rehabilitating and expanding the network of hydrometric stations on the Romanian sector of Danube – HyQ Danube project on SOPT 2007 – 2013* *Elaboration the project proposal within the SOPT 2014-2020 for rehabilitating and extending the network of hydrometric stations on the Romanian sector of Danube*

Danube Black Sea Canal

	Key issues	*Need for action*	*Activities performed Jan – Sept 2016*
RO 01	Insufficient number of sounding vessels	Support acquisition of up-to-date sounding equipment to raise the coverage of surveyed areas.	DBSC: Defining of the action within the proposed FAIRway Danube project Tender procedure started in august 2016 for procurement of portable single beam echosounder
RO 02	Insufficient number of automatic gauging stations.	Support acquisition of additional automatic gauging stations, especially for critical sections.	DBSC: Defining of the action within the proposed FAIRway Danube project
RO 03	Lack of dredging equipment, specialized personnel and deficiency of investments in river regulation	Support acquisition of dredging equipment performance to increase the efficiency of working problem areas and the possibility of intervention at any time where	DBSC: ACN finalized dredging works in order to assure the optimum navigation conditions

		it is needed	
RO 07	Unavailable forecast for water levels.	Support establishment of a water level forecast	DBSC: Defining of the action within the proposed FAIRway Danube project

8.5 RO | Review of rehabilitation and maintenance activities Jan – Sept 2016

The following activities relate to all critical locations as identified in the Rehabilitation and Maintenance Master Plan (version December 2015):

Riverbed surveying activities Jan – Sept 2016

In the period mentioned, the following river bed surveying activities were performed in accordance with an annual plan and depending on the water levels and fairway dimensions. The shallow sections were monitored by detailed surveys and control surveys.

During this period, especially the shallow sections, had been measured at least one time per month.. Also, there were carried out surveys for planning and establish the areas for dredging works and surveys for relocation of the fairway. The table below shows the sections monitored.

Danube

River-km (from-to)	Frequency of surveying	Type of survey (single/multi-beam)
839,00-610,00	1 per month	SB+MB
345,00-308,00	1 per month	SB
300,00-0,00	1 per month	SB+MB

Danube-Black Sea Canal

River-km (from-to)	Frequency of surveying	Type of survey (single/multi-beam)
0-64,410 DBSC	1 per a year	SB
0 – 27 PAMNC	1 per a year	SB
64+530-64+450 DBSC	1 per year	SB
37-38 DBSC	1 per a year	SB
1-2 PAMNC	1 per a year	SB
0-1 PAMNC – Luminita Branch	1 per a year	SB

Fairway relocation activities Jan – Sept 2016

Danube

River-km (from-to)	Frequency of relocation interventions	Comments
0,00-1075,00	1 per month	Monthly field inspections are performed with specialized vessels and depending on the situation, recourse to the fairway buoying works.

Based on the annual plan and the situation on the field, monthly field inspections were performed with specialized vessels and depending on the situation, recourse to the fairway buoying works (especially in Bechet and Corabia).
When necessary, because of the lows water levels, situated below LNWL, it was proceeded to narrow the fairway. Preventively when levels were close to LNWL values, were performed interventions for narrowing the fairway and ensuring depths for navigation. Due to water levels and flows discharge , the fairway trajectory It was set for most of the time.

Danube-Black Sea Canal

Between January-September 2016 no fairway relocation took place on the Danube-Black Sea Canal due to dredging activities.

Dredging activities Jan – Sept 2016

Danube

The following fairway dredging measures for the ensuring navigation conditions were implemented on the Romanian Danube:

Designation of assignment	Dredging site		Dumping or placement site		Beginning of service	End of service	Material	Utilisation	m3	Referenced and relevant permits (see next table)
	from river-km	to river-km	from river-km	to river-km						
Bechet	678.0	675.0	671,0	672,0	01.09.2016	30.09.2016	Fine sediment	Dumping	52.900	n/a
Cochirleni	304.0	310.0	304,0	305.0	01.09.2016	30.09.2016	Fine sediment	Dumping	10.943	n/a
Seimeni	289.0	292.0	288,5	289.0	01.09.2016	30.09.2016	Fine sediment	Dumping	20.675	n/a
Prut	133.0	137.0	138,0	138,6	15.04.2016	30.09.2016	Fine sediment	Dumping	346.651	1,2
Tulcea	74.0	77.0	79.0	80.0	19.09.2016	30.09.2016	Fine sediment	Dumping	101.250	1.2
Sulina Bar	0.50	0.80	Black Sea (to 2km)		25.04.2016	28.04.2016	Fine sediment	Dumping	14.413	1,2

For the period January - September 2016, on the river sector of the Danube, the dredging works started in September and a volume of 84.518 m^3 were dredged with the third parties to ensure navigation conditions in September 2016. For the maritime Danube, a volume of 462.314m^3 was dredged in the period April-September 2016 with AFDJ resources. For the period January - September 2016, a total volume of 546.832 m^3 was dredged to ensure navigation conditions.

Action Plan: Romania

Referen-ced and relevant permits	Title of permit (original language)	Permitting authority	Permit applicable		Valid until	Type of permit (e.g. environ-mental, water, navigation law)	Main conditions for permit
			from river-km	to river-km			
1	Autorizația nr. 284 din 13.11.2013	Environmental Protection Agency Galati	0	175	12.11.2023	Navigation law	To respect the Law no. 211/2011 regarding the regime of waste ; To respect Government Decision no. 235/2007 regarding the management of the used oil ; To respect the provisions of the International Convention for the Prevention of Pollution From Ships - MARPOL 73/78; It is forbidden the abandonment or storage in any way, in riverbed or on the banks of surface water or maritime of any kind of waste of Monitoring of the quality of the environment Monitoring of the chemical composition of dredged material
2	Autorizația nr. 1154 din 25.02.2013	Administration of the Danube Delta Biosphere Reserve	0	175	25.02.2023	Water low	the dredging works within the Danube Delta Biosphere Reserve in Bara Sulina Hm critical points at 77-90, Rostock Mm 31, Mm41 upstream Tulcea, Isaccea Mm + 800-Mm58 storage of the dredged material on the dredger „Dunărea Maritimă" discharge of the dredged material in the discharge areas in Bara Sulina 2 km offshore, km 108-km 109 St. Gheorghe arm, left bank, upstream Tulcea - Mm45 + 500 right bank, 58-Mm58 Isaccea Mm + 1/2 right bank

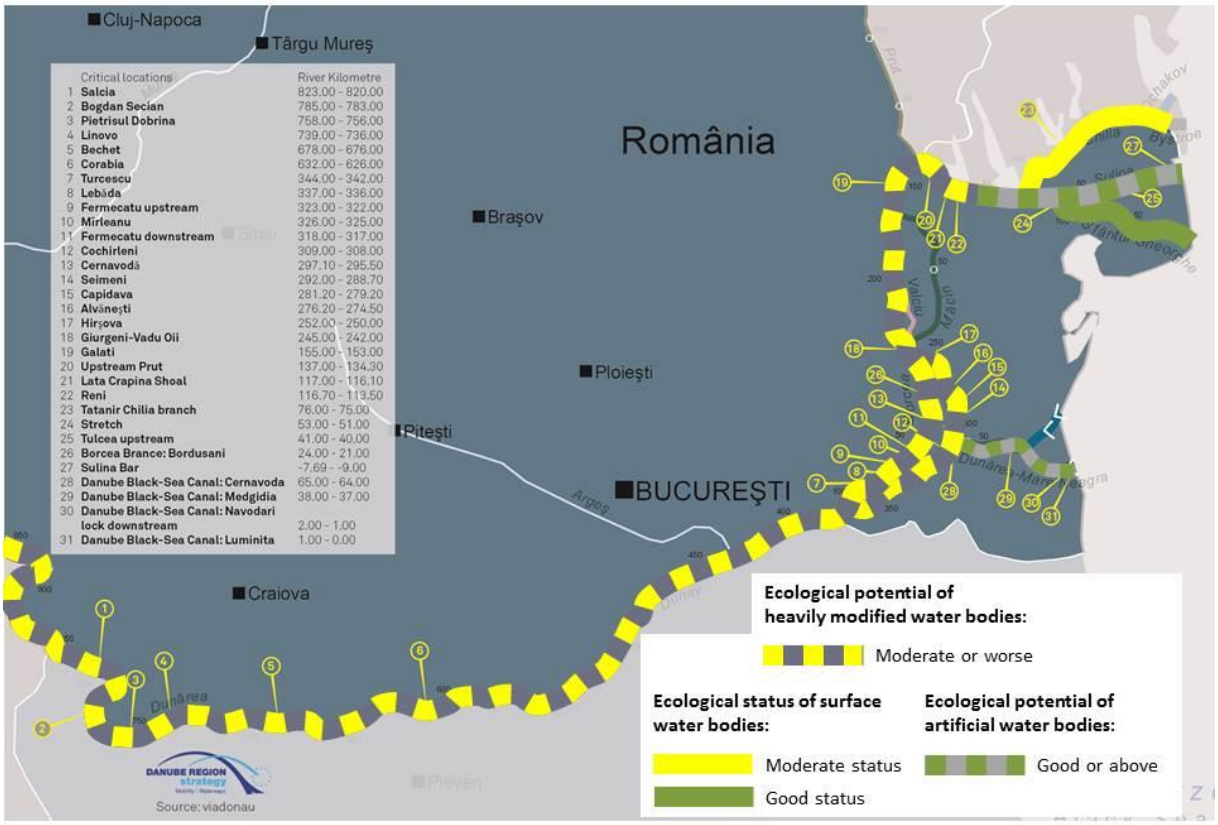
Danube-Black Sea Canal

Between January – September 2016 no dredging works was performed on navigable canals.

8.6 RO | Summary of current ecological status and environmental impacts

The following map displays the ecological status and ecological potential of the Romanian Danube – according to the Danube River Basin Management Plan/Update 2015 – against the

background of the critical navigation locations in Romania.



Danube

Ecological status and ecological potential of surface water bodies

The Danube River is the main navigable route from Romania. On Romanian territory, the waterway is divided into riverine Danube, from entering the country to Galati and maritime Danube from Galati until it flows into the Black Sea. Also, the Danube - Black Sea channel (CDMN) and Poarta Alba - Midia - Năvodari channel (CPAMN) provides the connection with the Black Sea.

In terms of ecological status as defined in the Water Framework Directive, most water bodies are good and moderate ecological status or ecological potential moderate.

Target "status deterioration" of water bodies is a key element in the protection of water bodies. Damage / risk of damage to the ecological status of water bodies in relation to new infrastructure projects will be permitted only in compliance with Art. 4.7 of the Water Framework Directive. Deteriorating (green) of water bodies considering item level of quality of the state of incorporation, applying the principle of "most unfavourable situations / one out all out", given the provisions of Annex V of the Water Framework Directive.

New projects / works are identified within a planning cycle and that were not contained in the Management Plan precedent can be implemented with the requirements Art. 4.7 of the WFD (where the expected risk of deterioration of the ecological / we achieve good status of the water body), to be published / contained in the following Management Plan.

Also, in cases where there is a change the environmental objective by passing water body category of natural water bodies heavily modified water bodies this is achieved by compliance with Art. 4.7 and Art. 4.3 of the WFD.
At the international river basin district of the Danube were established by the first and second Management Plan of the district Danube management objectives of the core management issues surface waters represented by: organic pollution, nutrient pollution, and pollution by hazardous substances, morphological alterations. For each category of important issues of water management and management objectives have been defined deadlines and 'targets' / compliance objectives and programs of specific measures. These objectives have been taken at national level as part of the process of water management in the Danube district. Detailed information on the management objectives at the Danube basin and sub-basin Tisa can be obtained by accessing the website: www.icpdr.org (public section).

Measures to improve environmental conditions

Potential works types, with the horizon of implementation during 2016-2020, largely depend on the availability of funding, and other issues such as, for example technical feasibility, availability of land where the work are executed, etc. In the call CEF Transportation was approved for funding the project "Technical assistance for reviewing and completing the feasibility study on improving navigation conditions on the joint Romanian-Bulgarian Danube and Additional studies " (former ISPA project II), with a deadline for completion in December 2018. Within the POS T 2007-2013 was funded project "Improvement of navigation on the Danube between Calarasi and Braila, Km 375 - Km 175" (former ISPA project I), due for completion in 2015. The projects mentioned have regard to the „Joint Statement on guiding principles for the development of Inland navigation and environmental Protection in the Danube River basin", adopted in December 2007 / January 2008. Thus, it was envisaged protection of the riparian environment and the necessary conditions and processes that lead to a sustainable development of inland navigation, the set measures to reduce the effects due to navigation. Within infrastructure works also mention the works included in the Operational Programme (POIM) as follows: major projects that will be implemented during the programming can be found at the following link: http://www.fonduri-ue.ro /Operational Programme Infrastructure 2014. Potential future infrastructure works will be subjected to an analysis in terms of damage / deterioration state / ecological potential of water bodies in the light of Art. 4.7 of the Water Framework Directive.
Information detailed in the National Plan for Management of the Danube River Basin.

Measures to ensure longitudinal connectivity

For the Danube River from Romanian sector, the Iron Gate Dams 1 & 2 (EN / RS) has significant river and habitat continuity interruptions.
Regarding additional measures such as ensuring longitudinal connectivity of water bodies within the period of drafting the by - second Management Plan was envisaged generally a prioritization of measures to ensure firstly connectivity longitudinal if transverse sealing existing heights below 15 m (considered technically feasible) on watercourses. Also analysed the possibility of providing longitudinal connectivity of water bodies for dams with heights greater than 15 m for the first Management Plan were provided as measures / tools, research studies which aimed at this goal.
The next stage will analyse the requirements of Article 4.7., the ACD and will be identified "alternative objectives" related by taking test compliance with the requirements of Art. 4.7.

andother bodies of water which are expected deterioration / or non-ecological potential environmental objectives in the context of new infrastructure projects.
Navigation on the project "Improvement of navigation on the Danube between Calarasi and Braila, km 375- km 175" (ISPA), will be developed to study alternatives Bala critical point 01 which will include the report on environmental impact assessment (EIA) report on adequate assessment (AA). 02 Epuraşu for critical points and 10 Ostrovul Lupu works shall not negatively impact the environment, according to data monitoring36.
For the project "Technical assistance for reviewing and completing the feasibility study on improving navigation conditions on the joint Romanian-Bulgarian Danube and Further Education" (ISPA II) were initiated necessary steps to relaunch the tender procedure for purchase of services to achieve the feasibility study. After completion of these activities will be carried out the analysis of these projects in terms of potential damage to water bodies concerned and the application of Article 4.7.the ACD, if necessary.
Consistent with District Management Plan International Danube (http://icpdr.org/main/management-plans-danube-river-basin-published) measures proposed in the program of measures of the Management Plan were correlated with impact climate change.

Danube Black Sea Canal

Ecological status and ecological potential of surface water bodies

ACN particularly monitors the water quality in the navigable canals, taking into consideration that the canals are a source of fresh water for the adjacent villages of the Romanian seashore.

According to Water Framework Directive , the global quality of the water on the Danube – Black Sea Canal and on the Poarta Alba – Midia Navodari Canal is integrated, chemically, in the second class of quality, appropriate for a good ecological state.
According with the Water Management Permit ACN has the following responsabilities:to operate and maintain the navigable canals according to the operating regulation; to provide to users the required waters quantity according with the normal level of insurance; to receive wastewater from users in regulated quality parameters; to maintain in good conditions the warning systems for cases of emergency, accidents and the informational system for water quality and quantity management ; in case of critical situations of pollution to take such measures so by lockage process or periodically discharges to ensure the renewal of the waters into the canals and bringing it in terms of required quality parameters.

Measures to improve environmental conditions

According with the Environmental Permit ACN has the following responsibilities: to inform the public on a quarterly basis through its website or other media about the consequences of its activity (in accord with the art. 26, paragraph 1 of Government Decision no 878/2005); to administrate the canals so as to comply with rules imposed under current potable water legislation; compliance with Plans for intervention and combating accidental pollution; to enforce to any kind of ships the prohibition for discharges into the canals of the sewage and waste waters loaded with hydrocarbons , detergents or other hazardous substances.

Navigation maintenance measures and environmental impacts

Action Plan: Romania

The maintenance of fairway supposed to maintain the wet section of the canals in limits of the designed parameters through periodic dredging of alluvial material deposits by water taken from the Danube and rising from hydrographic basin. Dredging periods will be established so that solid deposits on the bottom of canals does not exceed thickness of 1 m max 1.25 m for the Danube Black Sea Canal and 0,75 m ... max 1 m for Poarta Alba-Midia Navodari Canal. Dredging works are realised by keeping traffic open at least one way of navigation with corresponding signalization. The navigation dispatcher of ACN has the responsibility to notify the seafarers, by notification, all changes on sailing conditions.

8.7 RO | Budget status

Investments taken for FRMMP implementation 2014 – September 2016

The figures in this table comprise AFDJ and ACN	Required additional investment 2014 – 2020 according to FRMMP	Investment cost secured by state or other co-financing 2015 – 2020	(% thereof EU co-financed)	Remaining financing gap - Investments according to FRMMP
Minimum fairway parameters (dredging)	23.500.000	15.555.051	49%	7.944.949
Surveying of the riverbed	5.433.000	434.000	78%	4.999.000
Water level gauges	300.000	246.650	80%	53.350
Marking of the fairway	10.274.000	3.750.000	82%	6.524.000
Availability of locks / lock chambers	400.000	200.000	85%	200.000
Information on water levels and forecasts	206.000	206.000	85%	0
Information on fairwaydepths	400.000	400.000	85%	0
Information on markingplans	80.000	80.000	85%	0
Meteorological information	365.000	235.000	85%	130.000
Other needs	100.000	100.000	64%	0
Sum (Euro)	**41.058.000**	**21.206.701**	**78%**	**19.851.299**

Operational expenditures for current activity 2016 and budget needs 2017 (AFDJ and ACN)

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	3.898.000	4.838.000	In	

Surveying of the riverbed	905.100	928.000	accordance with national legislation, the budget proposal will be submitted to the Transport Ministry after publication of the annual budget state law in December.	
Water level gauges	-	-		
Marking of the fairway	3.544.713	3.625.500		
Availability of locks / lock chambers	10.841.032	7.500.000		
Information on water levels and forecasts	-	-		
Information on fairway depths	-	-		
Information on marking plans	-	-		
Meteorological information	-	-		
Other needs	263.539	245.000		
Sum	**19.452.384**	**17.136.500**		

Operational expenditures 2016 and budget needs 2017 (AFDJ)

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	3.700.000	3.750.000	In accordance with national legislation, the budget proposal will be submitted to the Transport Ministry after publication of the annual budget state law in	
Surveying of the riverbed	900.000	920.000		
Water level gauges	-	-		
Marking of the fairway	3.500.000	3.620.000		
Availability of locks / lock chambers	-	-		
Information on water levels and forecasts	-	-		
Information on fairway depths	-	-		
Information on marking plans	-	-		
Meteorological information	-	-		
Other needs	-	-		
Sum	**8.100.000**	**8.290.000**		

Operational expenditures 2016 and budget needs 2017 (ACN)

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	198.000	1.088.000	In accordance with national legislation, the budget proposal will be submitted to the Transport Ministry after publication of the annual budget state law in	-
Surveying of the riverbed	5.100	8.000		-
Water level gauges	-	-		-
Marking of the fairway	44.713	5.500		-
Availability of locks / lock chambers	10.841.032	7.500.000		-
Information on water levels and forecasts	-	-		-
Information on fairway depths	-	-		-
Information on marking plans	-	-		-
Meteorological information	-	-		-
Other needs	263.539	245.000		-
Sum	**11.352.384**	**8.846.500**		**-**

Action Plan: Romania

** The ACN Constanta has not submitted the budget proposal for 2017 to the Ministry of Transport, the amounts specified in the columns are estimated by AFDJ.*

8.8 RO | Outlook: actions, milestones and funding sources

Danube and Danube-Black Sea Canal

RO 01: Insufficient number of sounding vessels		
Planned activities:	*Support acquisition of up-to-date sounding equipment to raise the coverage of surveyed areas managing of the purchasing*	
Current shortcomings:	Insufficient of the up-to-date sounding vessels and equipment, modernisation and acquisition requested	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through CEF Programme – FAIRway Danube project Operational Programme Transport 2014-2020	
Next steps:	**AFDJ:** Acquisition of sounding vessels and equipment's **Danube Black Sea Canal:** Acquisition of a portable single beam echosounder Finalization of feasibility study for design and built 2 multifunctional vessels Design and built 2 multifunctional vessels (depending the financial resources)	Until the end of 2017 Until March 2017 Until September 2017 Until June 2020
RO 02: Insufficient number of automatic gauging stations.		
Planned activities:	Support acquisition of additional automatic gauging stations, especially for critical sections.	
Current shortcomings:	Insufficient number of automatic gauging stations , especially for critical sections	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through SOP-T 2007-2013 – HyQ Danube Project/ CEF Programme – FAIRway Danube project next call of CEF Programme or next Operational Programme	
Next steps:	**AFDJ** Organising the tender for acquisition and installation the	

	10 automatic gauging station in a selected pilot areas within FAIRway Danube project Installation automatic gauging station in a selected pilot areas within FAIRway Danube project Submitting the project proposal for realisation the network of hydrometric stations Organising the tender and realisation the network of hydrometric stations **Danube Black Sea Canal** Technical expertise for existing gauging network system Acquisition procedure for modernization and extension of the existing gauging network system +execution.	Until 2018 Until November 2016 Until June 2017
RO 03: Lack of dredging equipment, specialized personnel and deficiency of investments in river regulation		
Planned activities:	Support acquisition of dredging equipment performance to increase the efficiency of working problem areas and the possibility of intervention at any time where it is needed	
Current shortcomings:	**AFDJ:** Missing dredging equipment for river sector problem areas and the possibility of intervention at any time where it is needed. Lack of new specialized personnel due to the restrictions of national legislation Low level waterway infrastructure **Danube Black Sea Canal:** One of the important issues to ACN is to ensure the stability of navigable canals banks, in area where the gap between service road level and natural ground level is up to 55 m (about 20 km on Danube Black Sea canal –each shore and about 7 km on Poarta Alba Midia Navodari canal –on each shore)	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	*Budget availability 2015/2016: Funding through* *State budget* *CEF Programme*	
Next steps:	**AFDJ** Acquisition of dredging equipment within the SWIM project Launch the tender procedure for acquisition of dredging equipment with founds from state budget New dredging equipment needs of having new specialized personnel – training will be made **Danube Black Sea canal** : Currently ACN is looking to identify the possible financial resources for execution of works . -If ACN identify the financial allocation for this project, the feasibility study (financed by ISPA funds) for protection and consolidation of banks will be revised and	*End of 2018* *Until 2018* *Until 2020*

	updated Design and execution of works (protection and consolidation of banks)	
RO 04: Inefficient procedures. The documentation to draw up a contract for dredging is time-consuming.		
Planned activities:	Support standardization and simplification of documentation procedures.	
Current shortcomings:	Inefficient procedures	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	*Budget availability 2015/2016: Funding through AFDJ budget/state budget and CEF Programme*	
Next steps:	*Preparing specific documentation for the efficient procedures concerning with existing standards and national legislation*	*Until the end of 2016*

RO 05: Lack of efficient vessels and special equipment for marking.		
Planned activities:	*Support acquisition of vessels equipped with advanced machines to perform operations board assembly / disassembly floating signals.*	
Current shortcomings:	Missing the efficient vessels and special equipment for marking	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through SOP-T 2007-2013 – Feasibility study for technical vessels CEF Programme – FAIRway Danube project	
Next steps:	Launch the tender procedure and purchasing the marking vessels	Until 2017
RO 06: Insufficient number of buoys and position monitoring equipment. Unavailable automated system for the transmission of information on the buoys. The dissemination of information could be improved		
Planned activities:	*Support acquisition of buoys and monitoring equipment.* *Support establishment of an automated monitoring system and improve the provision of information on fairway marks.*	
Current shortcomings:	*Insufficient number of buoys and position monitoring equipment*	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A

	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through: CEF Programme – FAIRway Danube project Operational Programme 2014 - 2020 AFDJ budget/state budget	
Next steps:	Preparing the technical specification for public acquisition Submitting a project proposal for improving and monitoring Romanian marking system Manufacturing the standard buoys	Until 2017 Until 2017 Until 2017
RO 07 Unavailable forecast for water levels		
Planned activities:	*Support establishment of a water level forecast*	
Current shortcomings:	Unavailable forecast for water levels	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through SOP-T 2007-2013 – HyQ Danube Project CEF Programme – FAIRway Danube project next call of CEF Programme or next Investment Programme	
Next steps:	**AFDJ** Organising the tender for automatic gauging station for installation 10 automatic gauging station in a selected pilot areas within FAIRway Danube project Installation automatic gauging station in a selected pilot areas within the FAIRway Danube project Realisation of hydrological database within the FAIRway Danube project Set-up the mathematical model used for water level forecast Submitting the project proposal for realisation the network of hydrometric stations Organising the tender and realisation the network of hydrometric stations **Danube Black Sea canal** Organising the tender for automatic gauging station for installation automatic gauging station in a selected locations Implement a national forecast water level for 5 days with a high accuracy for the next 2-3 days (AFDJ+ACN)	Until the end of 2016 March 2017 Until the end of 2017 Until 2017 Until 2017 Until 2018 Until June 2017 Until March 2019
RO 08: Information could be provided customer-friendly using established river information portals.		
Planned activities:	Support customer-friendly processing and dissemination of information.	
Current shortcomings:	Insufficient quality and frequency of transmitting information to users	

Action Plan: Romania

Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through AFDJ budget/state budget Danube Transnational Programme 2014-2020	
Next steps:	**AFDJ** Increasing technical capacity for processing and publishing fairway information Update of FIS Portal and D4D within Danube Stream Project Update the RoRIS Portal **ACN** Update of FIS Portal and D4D within Danube Stream Project	Until the end of 2016 Until the end of 2016
RO 09: Unavailable digital terrain models for shallow sections.		
Planned activities:	*Support set-up of digital terrain models for shallow sections.*	
Current shortcomings:	*Unavailable digital terrain models for shallow sections*	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through AFDJ budget/ state budget CEF Programme	
Next steps:	**AFDJ** Acquisition of software for creating the DTM within the FAST DANUBE project Realisation of data base for hydrographical data	Until 2018
RO 10: Insufficient number and quality of weather stations.		
Planned activities:	*Support improvement of meteorological information.*	
Current shortcomings:	*Insufficient number and quality of weather stations.*	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through SOP-T 2007-2013 – HyQ Danube Project CEF Programme – FAIRway Danube project next call of CEF Programme or next Investment Programme	
Next steps:	Finalisation the feasibility study for rehabilitating and extending the network of hydrometric stations Organising the tender for automatic gauging station for	

	installation of 10 automatic gauging station in a selected pilot areas within the FAIRway Danube project Installation automatic gauging station in a selected pilot areas Submitting the project proposal for realisation the network of hydrometric stations Organising the tender and realisation the network of hydrometric stations	Until the end of 2017 Until the end of 2017
RO 11: Missing interconnection with databases of other waterway administrations to exchange data		
Planned activities:	*Support interconnection between databases of different waterway administrations.*	
Current shortcomings:	*Insufficient interconnection with databases of other waterway administrations to exchange data*	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No environmental impacts
	Which measures are taken to mitigate these impacts?	N/A
	Is water status still expected to deteriorate?	N/A
Possible funding:	Budget availability 2015/2016: Funding through SOP-T 2007-2013 – HyQ Danube Project CEF Programme – FAIRway Danube project and other project proposal AFDJ budget/state budget	
Next steps:	Acquisition of hardware and software for creating data base Creating data base with the same structure with other waterway administrations for improving the data exchange service	Until 2018

9 Bulgaria

EAEMDR – Executive Agency "Exploration and Maintenance of the Danube River" (a public authority within Ministry of Transport) is responsible for fairway maintenance, rehabilitation and upgrade.

9.1 BG | Status report on main critical locations 2012 – Sept 2016

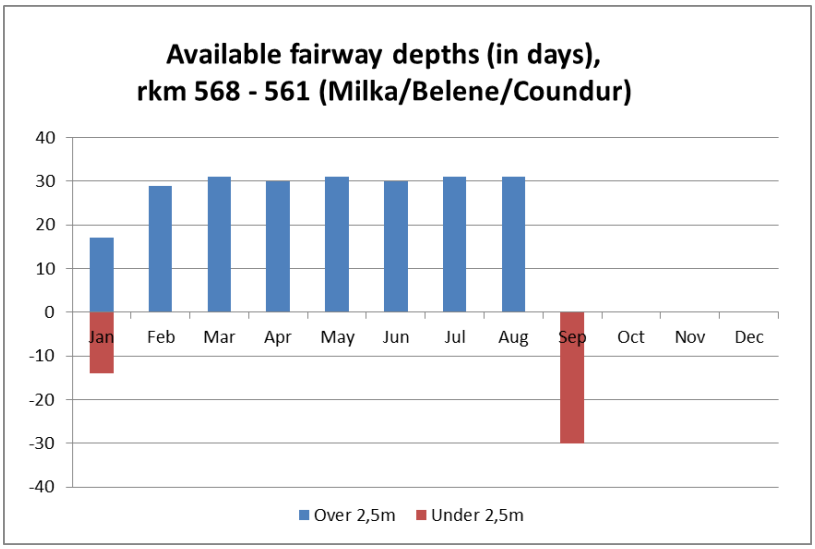
Number of days with fairway depths > 2.5m on critical locations

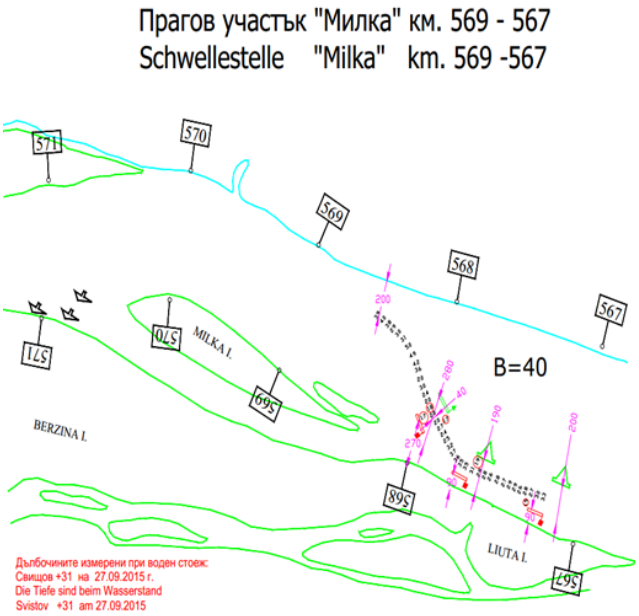
This table includes the main critical locations as identified by the Danube waterway users in the Master Plan in December 2014 *(marked grey)* and further very critical locations as additionally identified by EAEMDR. The fairway width is given related to LoS 1 (80m fairway width).

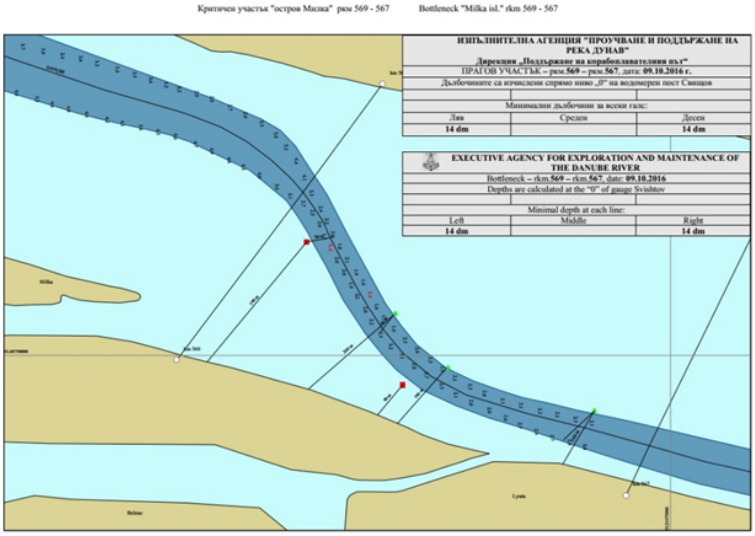
Critical location rkm from-to	Critical location name	2012	2013	2014	2015	Jan-Sept 2016
km 610 - km 607	Somovit	318	327	365	313	274
km 591 - km 584	Sredniak island Palets island	345	346	365	316	274
km 569 - km 561	*Belene island Milka island Kondur island*	*283*	*275*	*337*	212	230
km 548 - km 540	*Vardim island*	*292*	*309*	*360*	268	244
km 540 - km 536	*Yantra River Giska Island*	*316*	*317*	*360*	253	237
km 525 - km 520	*Batin island*	*339*	*314*	*352*	246	237
km 476 - km 472	*Gostin island*	*337*	*326*	*365*	365	274
km 463 - km 460	*Mishka island*	*366*	*365*	*365*	365	274
km 458 - km 455	*Brashlian island*	*341*	*365*	*365*	365	256
km 441 - km 435	*Radetski island*	*366*	*365*	*365*	365	274
km 426 - km 420	*Kosui island Dunavets island*	*332*	*354*	*365*	322	274
km 414 - km 410	Malak Preslavets island	345	341	365	365	274
km 408 - km 399	Popina island	342	365	365	311	242
km 395 - km 390	Vetren island	345	365	365	365	274

km 386 - km 382	Chajka island	346	358	365	365	274

2015 had been a very critical year on the Lower Danube. 2016 (until 30.09.2016) also started with fairway width <25 decimetres at some critical sections during the first half of January. After January those critical location saw high medium water levels until September, when a extreme decrease of water levels caused occurrence of critical sections at e.g. water level +188 (reference gauging station Svishtov). Similar problems appeared in the area of Brashlian island (rkm 457 – 455) and in the area of Popina (rkm 407 – 405).





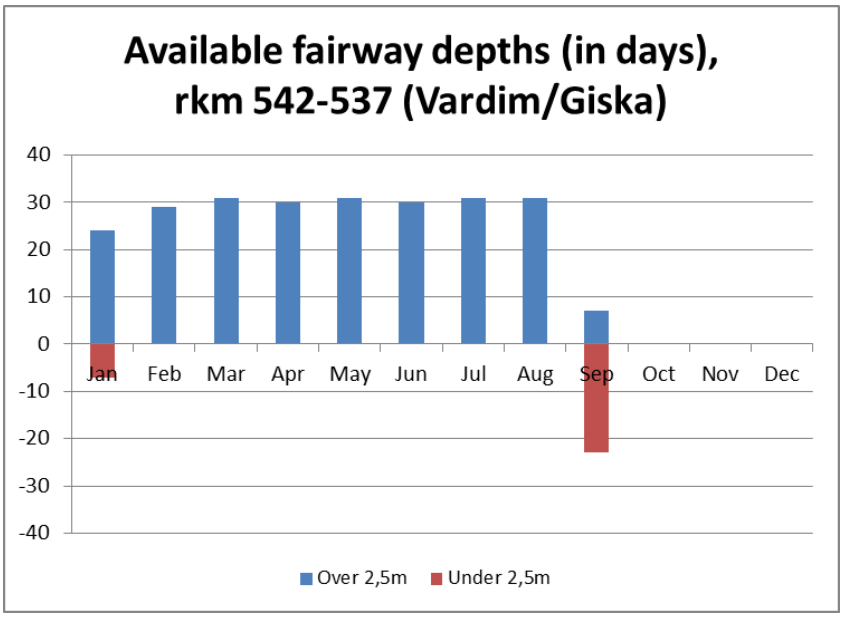


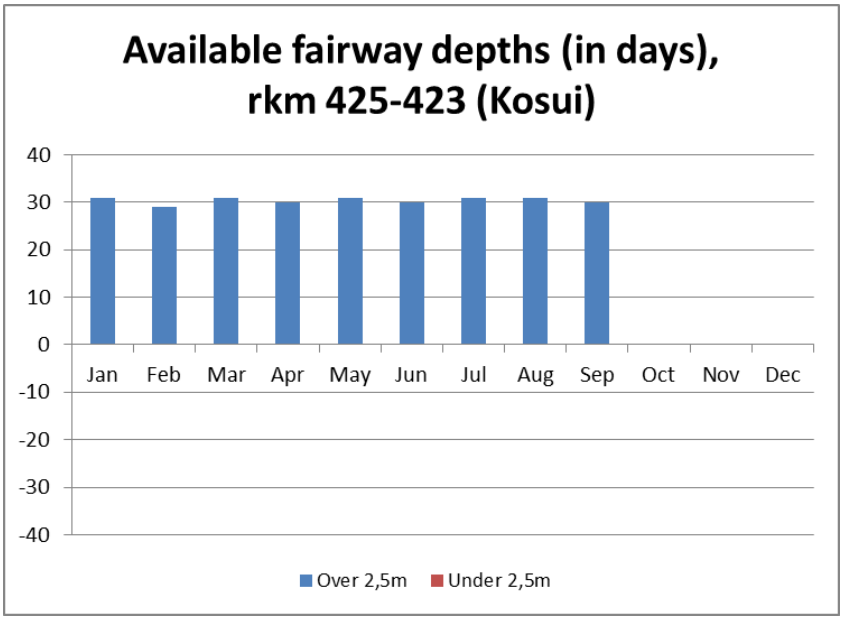
Minimum depth measured in the critical location Milka island - 2015:

- Depth less than 25 dm was observed in June 2015 at water level 220 cm in gauging station Svishtov;
- Number of days with depth <25 dm - 153;
- Number of days with water level under LNWL - 66.

Minimum depth measured in the critical location Milka island - 2016:

- Depth less than 25 dm was observed in the beginning of September 2016 at water level 188 cm in gauging station Svishtov;
- Number of days with depth <25 dm - 44;
- Number of days with water level under LNWL - 12.





As a general statement, depth less than 25 dm at critical sections can be observed at different water levels, and different water levels occur at certain gauging stations where the same water discharges are measured. The tendency of the last couple of years points towards decreasing of the observed water levels.

Some of the identified reasons for deterioration of the navigational conditions in the past years are listed below:

- Alteration in the hydraulic characteristics of the riverbed due to disturbed sediment transport in the upper, middle Danube and its tributaries;
- Reduce water discharges;
- Unprotected from erosion coasts and islands;
- Reducing the diameter of debris (sediments);

9.2 BG | Hydrological conditions on main critical locations 2012 – Sept 2016

Number of days with flow discharge above multiannual average flow discharge for the main critical locations identified by the users.

Critical location	Reference* gauges	No. of days ≥ multiannual average flow discharge (m3/s)				
		2012	2013	2014	2015	Jan-Sept 2016
567.00-566.70 – Belene island 562.00-561.50 – Coundur/Milka island 541.60-541.00 – Vardim island 538.50-537 – Giska island	Svishtov km 554.300	78	168	205	136	136
523.80-523.20 – Batin island 475.70-475.30 – Gostin island	Ruse km 495.600	84	176	211	141	141
425.90-425.20- Kosui island 391.60-391.10 – Vetren island 383.50-382.50 – Chajka island	Silistra km 375.500	75	165	210	150	141

*In the critical locations, flow discharge measurements are not performed with the necessary frequency. The data used as a base for the above table is collected in gauging stations near critical sections.

9.3 BG | Water level information on main critical locations 2012 – Sept 2016

Critical location	Reference gauges	No. of days ≥ LNWL				
		2012	2013	2014	2015	Jan-Sept 2016
567.00-566.70 – Belene island 562.00-561.50 – Coundur/Milka island 541.60-541.00 – Vardim island 538.50-537 – Giska island	Svishtov km 554.300	337	326	365	285	262
523.80-523.20 – Batin island 475.70-475.30 – Gostin island	Ruse km 495.600	341	329	365	288	262
425.90-425.20- Kosui	Silistra km	325	326	365	293	262

island 391.60-391.10 – Vetren island 383.50-382.50 – Chajka island	375.500					

9.4 BG | Key issues and related activities Jan – Sept 2016

Related to the key issues illustrated in the Fairway Rehabilitation and Maintenance Master Plan (version: December 2014), the need for action and the activities performed are described beow:

	Key issues	Need for action	Activities performed Jan – Sept 2016
BG 01	Old or insufficient measuring equipment	Support acquisition of up-to-date (renewed single-beam and additional multi-beam) sounding equipment	**The FAIRway Danube project was approved by INEA and funded under CEF. Activity 3 includes the delivery of specialized monitoring equipment including multi-beam sounders.** **The Project "Improvement of the systems for navigation and topohydrographic measurements on the Danube – phase 2" was approved for funding under OPTTI 2014-2020. The Application form was approved by the MA of OPTTI on 02.03.2016 and the Grant Agreement was signed on 30.03.2016. The contract with the supplier, selected during an open public procurement procedure according to the Public Procurement Act was signed in March 2016. The delivery of the surveying vessel is expected by March 2017.**
BG 03	To a large extend, interventions are planned on short term due to rapidly changing fairway conditions	Support improvement of monitoring procedures, data basics and methods for analysis and planning of interventions	**The FAIRway Danube project was approved by INEA and funded under CEF. Activity 3 includes delivery of Waterway Management System. An Agreement regarding the joint procurement of the transnational Waterway Management System was concluded and the procurement documents were elaborated.** **The FAST Danube project was approved by INEA and funded under CEF. Within the project a feasibility study for river engineering measures in the common Bulgarian-Romanian sector will be elaborated.**
BG 04	Inefficient allocation of resources due to suboptimal information support system, lack of consistent database of riverbed surveys and	Support introduction of a Fairway Management System	**The FAIRway Danube project was approved by INEA and funded under CEF. Activity 3 includes delivery of surveying vessel, gauging stations, water level forecast software and WMS. The tender procedure for surveying vessel was launched.** **Preparation and submission of project**

	cumbersome procedures		**"Improvement of the systems for navigation and topohydrograpic measurements on the Danube – phase 2" to be financed under OPTTI 2014-2020. The project foresees delivery of surveying vessel to deliver data for the WAMOS.**
BG 05	Only very little dredging works of the fairway have been performed for many years because of insufficient dredging equipment and limited financial resources	Support acquisition of up-to-date dredging equipment Increase available annual resources for dredging works Support implementation of structural river engineering measures	**Preparation of project "Modernization and optimization of the activities for rehabilitation of the fairway in the common Bulgarian-Romanian section of the Danube River" to be financed under OPTTI 2014-2020** **The project foresees delivery of multifunctional dredger (cutter suction dredger). The Application form is under preparation and is expected to be submitted to the MA latest in December 2016. The evaluation period is 90 days. In parallel the technical specifications and tender dossier will be elaborated, respectively - a tender should be done.** **Indicative time schedule: in case of an approval of the Managing Authority, the tender is expected to be launched at the beginning of 2017, contract for the delivery could be expected to be signed in the second half of 2017. The time schedule can be changed in case the Managing Authority decides earlier.** **Due to budget shortage, a pusher to move the dredger and a hopper barge are still needed.** **During the bilateral Bulgarian-Romanian joint commission on the Danube fairway maintenance and improvement meeting in November 2015 an action plan was adopted. Trilateral meeting on the issues of navigation in the common Bulgarian-Romanian section of the Danube river took place in the premises of EAEMDR – Ruse on 16.12.2015. Representatives of Bulgarian and Romanian Ministries of Transport and DG Move took part in the workshop. During the meeting the necessary fairway maintenance measures and respective budget for 2016 were discussed. In this respect preparation of public procurement procedure on maintenance dredging in the most critical sections of the Bulgarian stretch was started. The preparation of the documentation was finalized in the beginning of 2016. In case the necessary resources are available, the tender for assigning dredging works could be launched any time.** **FAST Danube project was approved by INEA and funded under CEF. Within the project a feasibility study for river engineering**

			measures in the common Bulgarian-Romanian sector will be elaborated.
BG 06	High traffic risks due to loss or incorrectness of navigation signs provoked by accidents with ships or insufficient maintenance	Enable improved surveillance of navigation activities by electronic means Increase resources for maintenance of floating signs	**The delivered floating and coastal navigational signs within project „Improvement of the systems for navigation and topohydrographic measurements along the Danube River" under OPT 2007-2013, were positioned. The system for control of location of floating signs and coastal light beacons in real time has been tested and was fully operable until the end of 2015.** **The necessary resources are secured and available.**
BG 07	Insufficient marking equipment	Support acquisition of monitoring and marking equipment	**FAIRway Danube project was approved by INEA and funded under CEF. Activity 3 includes delivery of specialized monitoring equipment, including multi-beam and marking vessel.** **See "Improvement of the systems for navigation and topohydrographic measurements on the Danube – phase 2" (BG01)**

9.5 BG | Review of rehabilitation and maintenance activities Jan – Sept 2016

The following activities relate to all critical locations as identified in the Rehabilitation and Maintenance Master Plan (version December 2014).

Riverbed surveying activities for the period Jan – Sept 2016

During the period 1 January – 30 September 2016, the following surveys were performed. The locations to be surveyed in 2016 were prioritized and the Hydro-graphic department.

River-km (from-to)	Frequency of surveying	Type of survey (single/multi-beam)
568.3 – 567.0[1]	once for the period 1 January – 30 September 2016 (in May 2016)	single-beam survey
533.7 - 531.5[2]	once for the period 1 January – 30 September 2016 (in May 2016)	single-beam survey
491[3]	twice for the period 1 January – 30 September 2016 (in April and May 2016)	single-beam survey
488[4]	once for the period 1 January – 30 September 2016 (in April 2016)	single-beam survey
491 (Ruse) – 845	once for the period 1 January – 30	single-beam survey (longitudinal

(Timok river) 354 km	September 2016 (in September 2016)	profile, requested by the Danube commission)

[1] – Belene island area (Milka island)

[2] - Yantra river

[3] - EAEMDR specialized port;

[4] - bridge Ruse-Giurgiu; survey was performed for the purpose of the periodic common Bulgarian-Romanian commission for the bridge;

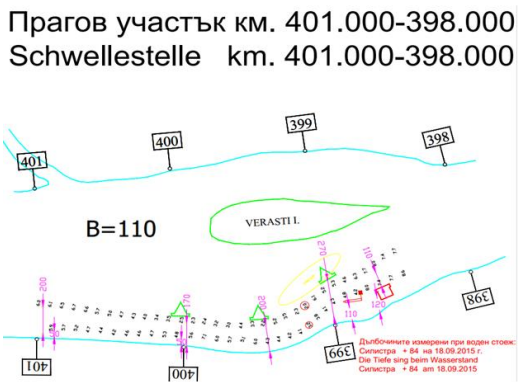
* In August and September 2016 a detailed planning of the new locations of the gauging stations, which will be delivered under FAIRway Danube project, was done. The additional measurements, which were performed in order to choose the most suitable points for installation, were done at the following rkms:

- rkm 403 – Popina;
- rkm 466 – Ryahovo;
- rkm 817 – Gomotartsi;
- rkm 770 – Archar;
- rkm 714 – Dolni Tsibar;
- rkm 704 – Kozlodui;
- rkm 654 – Gorni Vadin;
- rkm 625 – Zagrajden;

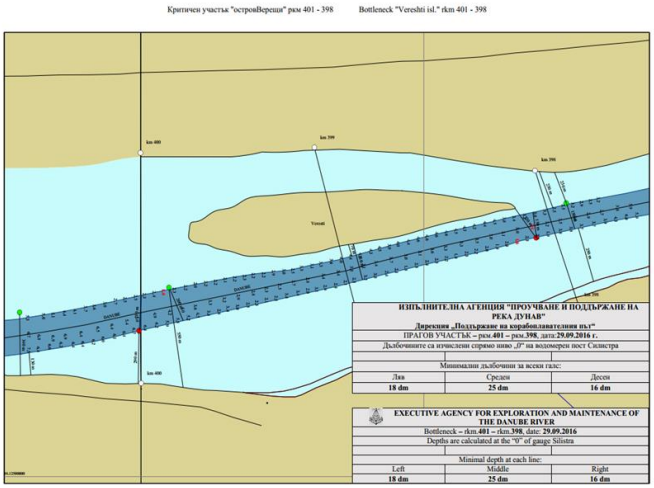
EAEMDR chose another location on the shore which is suitable for providing the correct water-levels for inland navigation and flood protection, but which is installed at a less ecological sensitive area.

Fairway relocation activities Jan – Sept 2016

In the period 1 January 2016 – 30 September 2016 only one relocation intervention of the fairway trajectory was performed. The change was done in September 2016 from rkm 401 to rkm 399.



Fairway Trajectory 2015



Fairway Trajectory 2016

Dredging activities Jan – Sept 2016

No dredging activities on the fairway were performed by EAEMDR from 1 January 2016 until 30 September 2016. The main reason lies in the lack of suitable dredging equipment available to EAEMDR (see key issue BG 05). The extremely limited financial resources additionally hamper the execution of dredging works with the equipment which is available.

9.6 BG | Summary of current ecological status and environmental impacts

The whole Bulgarian stretch of the Danube River is classified as Heavily Modified Water Body. According to the Danube River Basin Management Plan 2010-2015 the ecological status and ecological potential of the Bulgarian Danube was determined as moderate. The new Danube River Basin Management Plan 2016-2021 has been updated and currently it is under procedure of public hearings. The process is not finalized and the updated plan is not approved yet.

The Danube River in the Bulgarian stretch was determined in DRBMP 2010-2015 as “heavily modified water body” on the basis of following criteria: water discharge alteration due to significant withdrawals of water bodies (category “River”) after dams; regulation of the flow (via built dams); morphological changes (due to extraction of inert materials from the river beds, corrections riverbed and building hydropower plants).

During a technical meeting between Bulgaria and Romania in 2004 and an agreement was achieved for the classification of the Danube River in the common Bulgarian-Romanian section (from km 833.6 – Novo selo to km 375.5 - Silistra) as HMWB. For the WBMP 2010-2015 the final tests from the Common implementation strategy for WFD were not applied.

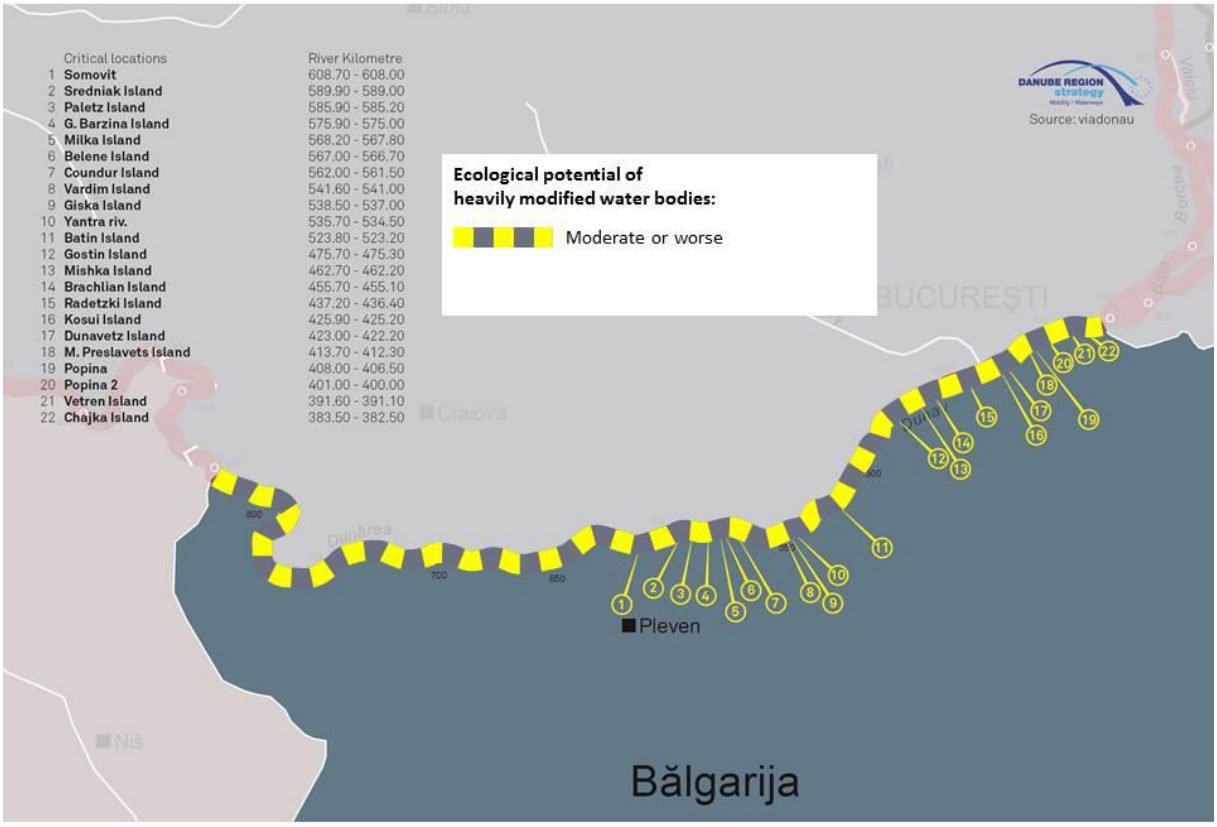
During the update of the DRBMP the current impact on the Bulgarian stretch of the Danube River was investigated, according to the Criteria for preliminary HMWB identification. Based on the preliminary results for the Danube River, it could not be determined as HMWB. Moreover the approved national criteria for HMWB identification are not applicable for large rivers as Danube in their original version.

Action Plan:Bulgaria

One of the main deliverables of the on-going project “Intercalibration of the methods for analysis of biological quality elements (BQE) for the types of surface waters on the territory of Bulgaria, corresponding to common European types in the Geographical intercalibration groups” (November 2013 - December 2016) is detailed assessment of the hydro morphological change of the Danube River. The project foresees assessment of the stage of modification of the lateral connectivity of the river, because construction of dikes for the purpose of flood protection exercise the main impact on the hydromorphological regime of the river.

Taking into account that the Danube River is boundary during the process of HMWB classification the impact of the Romanian side should be also considered, including the cumulative effect of both countries. In the updated DRBMP for Romania the Danube River is classified as HMWB. During the joint meeting in 2015 between Bulgarian and Romanian Ministries of environment, the Bulgarian delegation informed the participants that at this stage the Danube could not be identified as HMWB based only on the analysis of the hydromorphological impact on the Bulgarian territory. For the moment the Danube River is defined as HMWB, but could be finally determined as such after the conclusions of “Intercalibration of the methods for analysis of biological quality elements (BQE) for the types of surface waters on the territory of Bulgaria, corresponding to common European types in the Geographical intercalibration groups” project are ready.

The following map displays the ecological status and ecological potential of the Bulgarian Danube – according to the Danube River Basin Management Plan/Update 2015 – against the background of the critical navigation locations in Bulgaria.



Ecological status and ecological potential of surface water bodies (Source: DRBM Plan – Update 2015)

For the heavily modified water bodies measures are to be implemented for the achievement of the good ecological potential.

Measures to improve environmental conditions

According to the Structural Regulations of EAEMDR the only ecology related activities, performed by the Agency are:

- participation in localization and removal of pollution, caused by navigation in the common BG-RO section of the Danube River;
- collecting oily and greasy ship waste from transit vessels.

In the past 10 years the Executive agency has implemented two projects, related to the waste management of inland navigation on the Danube (WANDA – 2009-2012; CO-WANDA – 2012-2014) and a project called WATER – Danube integrated water management. The three – year strategic project launched in June 2012 addressed the achievement of the integrated water management and environmental protection objectives for the Danube Floodplain as required by the European Union Water Framework Directive 2000/60/EC (WFD). The general objective of the Danube WATER project was to create a common management and monitoring system for water quality in extreme environmental conditions (floods, droughts, accidental pollution by chemical and radioactive substances), including providing a data and information dissemination mechanism, necessary for the regional development of the border area.

Several ecological projects were implemented in the period 2009-2015 along the Bulgarian stretch of the Danube River, with focus on natural parks.

The project: Limiting the negative influence of invasive species and restoration of the natural habitats, through planting of local species in Srebarna Nature Reserve has been financed under the national operational programme on environment 2007-2013. The beneficiary was The Regional Inspectorate of Environment and Water – Rousse and the project was implemented during 2013. The goal of the project is to protect the biodiversity in the Srebarna Nature Reserve and to restore and maintain the habitats - subject of protection. The project included exploration activities as: inventory of the forest habitats (natural and / or semi-natural) in Srebarna Nature Reserve and the habitat 91 EC*, as part of them; analysis of the state and the evaluation of its favourable conservation status; working out a program for reforestation of areas with native species (technological plans for reforestation), exempt from hybrid poplar; initial study of the vegetation in terms of invasiveness of the territory of Srebarna Nature Reserve, by walkthrough and testing of the protected territory and determining of the invasive plant species, their area distribution and their impact on the natural vegetation in the wetland; and implementation of the practical measures: marking of the invasive species and implementation of effective measures for eliminating them and limiting their negative impact; activities on utilization operations of the extracted material, according to the developed methodology; implementation of activities for rehabilitation and repair of the gateways in the Srebarna Nature Reserve, etc.

Project Implementation of activities for planning and management of reserve "Chuprene", reserve "Gorna Koria" and managed reserve "Ibisha" (situated on km 717 of the River Danube). The project has been financed under the national operational programme on environment 2007-

2013. The beneficiary of the project was the Regional Inspectorate of Environment and Water – Montana.The main activities implemented within the project were:

- Identification and analysis of currently available information for each of the three protected areas;
- Field research, incl. forestry taxation in order to provide the necessary additional information;
- Conducting workshops both formal and in operating order;
- Data analysis and evaluation of the environmental and socio-economic importance of the protected areas;
- Development of database for protected areas and identifying monitoring scheme for its supplementing;
- Defining territorial regimes and norms for use;
- Identifying the main threats to protected areas as well as identifying long-term objectives and constraints;
- Development of long-term and short-term programmes, plans and projects;
- Conducting a public discussion for each of the protected areas.

Navigation maintenance measures and environmental impacts

Maintenance works of the fairway on the Danube River are executed in the framework of the Water Act (SG 67/27.07.1999, last amended SG61/11.08.2015), Law for the maritime spaces, the inland waterways and the ports of the Republic of Bulgaria (SG 12/11.02.2000, last amended SG52/10.07.2015).

No dredging activities on the fairway were performed by EAEMDR during the past years. The main maintenance activity performed by the Agency is marking on the fairway. The negative environmental impact from the marking activity could be considered insignificant.

9.7 BG | Budget status 2015 – September 2016

Investments taken for FRMMP implementation 2014 – September 2016

Need areas	Required additional investment 2014 – 2020 according to FRMMP	Investment cost secured by state or other co-financing 2015 – 2020	(% thereof EU co-financed)	Remaining financing gap - Investments according to FRMMP
Minimum fairway parameters (dredging)	8.020.000	0	0	8.020.000
Surveying of the riverbed	3.810.000	3.827.822	85%	-
Water level gauges	0	400.000	85%	-

Marking of the fairway	9.215.000	4.044.245	85%	5.170.755
Availability of locks / lock chambers	n/a	n/a	n/a	n/a
Information on water levels and forecasts	0	125.000	85%	-
Information on fairway depths	12.000	320.000	85%	-
Information on marking plans	0	0	0	0
Meteorological information	75.000	80.000	85%	-
Other needs	0	150.000	85%	-
Sum (Euro)	**21.132.000**	**8.947.067**	**85%**	**13.190.755**

Operational expenditures for current activity 2016 and budget needs 2017

Need areas	Estimated operational expenditures 2016	Required operational budget 2017	Secured operational budget 2017	Remaining estimated financing gap 2017
Minimum fairway parameters (width/depth)	0	3.067.751[3]		3.067.751[3]
Surveying of the riverbed	23.530[4]	600.000		600.000
Water level gauges	27.686[2]	5.000		5.000
Marking of the fairway	121.593	268.750		268.750
Availability of locks / lock chambers	n/a	n/a		n/a
Information on water levels and forecasts	27.686[2]	14.000		14.000
Information on fairway depths	6.000	6.000		6.000
Information on marking plans	6.000	6.000		6.000
Meteorological information	27.686[2]	15.000		15.000
Other needs	20.000	20.000		20.000
Sum (Euro)	**1.219.483**	**4.002.501**	**0[1]**	**4.002.501**

[1]The budget for 2017 is not set up yet. Preliminary figures could be available by January-February 2017.

[2]The operational expenditure for the period 1 January – 30 September 2016 (83.157) in lines "water level gauges", "information on water level and forecasts" and "meteorological information" could not be provided separately for each activity, because the stations on Bulgarian bank provide both hydrological and meteorological information

[3]In 2016 a tender documentation for public procurement for dredging on the fairway was elaborated and the estimated indicative budget for one year is 3.067.751 Euro.

[4] The significantly low expenditure for the surveying activities during 2016 could be explained with the fact that some of the measurement were performed together the marking activities in one and the same trip of EAEMDR marking vessel.

9.8 BG | Outlook: planned actions, milestones and funding sources

BG 01: Old or insufficient measuring equipment		
Planned activities:	Implementation of FAIRway Danube project - delivery of surveying vessel, equipped with a multi-beam echo sounder and delivery of automatic gauging stations.	
Current shortcomings:	None identified	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	The automatic gauging stations will be installed in the area of natural parks but no negative impact is expected
	Which measures are taken to mitigate these impacts?	-
	Is water status still expected to deteriorate?	-
Possible funding:	CEF	
Next steps:	The public procurement procedure for the surveying vessel and gauging stations will be launched in April 2016. The delivery of the equipment is expected until March 2017 when the monitoring pilot sub-activity within FAIRway Danube project will start. This sub-activity covers the analysis of the data collected by the surveying vessel and the water level gauges. The measurements will be carried out at critical locations on the Danube and the Danube-Black Sea Canal.	2016-2017
BG 02: Education and skilled staff		

Action Plan:Bulgaria

Planned activities:	The requirements for sufficient training for personnel to operate the equipment, delivered within FAIRway Danube project and project "Improvement of the systems for navigation and topohydrografic measurement – phase 2" , are included in the terms of reference for the deliveries. A project proposal for improving the administrative and technical capacity of the Agency will be submitted to priority axes 5 – Technical assistance of Operational program on "Transport and Transport Infrastructure 2014-2020".	
Current shortcomings:	None identified	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	n/a
	Which measures are taken to mitigate these impacts?	n/a
	Is water status still expected to deteriorate?	n/a
Possible funding:	Operational Programme "Transport and Transport Infrastructure 2014-2020"	
Next steps:	Application of a project proposal under the Operational Programme "Transport and Transport Infrastructure 2014-2020".	2016
BG03: Improved monitoring procedures, data quality and analyses		
Planned activities:	Currently EAEMDR operates 9 automatic hydrological and 9 automatic meteorological stations, delivered within project "Improvement of the systems for navigation and topohydrographic measurements along the Danube River", OPT2007-2013 The delivery of additional number of gauging stations, surveying vessel, online monitoring system and integration of WMS, foreseen in project FAIRway Danube is expected until March 2017.	
Current shortcomings:	Insufficient data available and non-state-of-the-art methods of gathering of fairway information (multi beam)	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	The automatic gauging stations will be installed in the area of natural parks but no negative impact is expected
	Which measures are taken to mitigate these impacts?	-
	Is water status still expected to deteriorate?	-
Possible funding:	CEF	
Next steps:	Implementation of FAIRway Danube project -public procurement procedure for the surveying vessel and gauging stations will be launched in April 2016. The delivery of the equipment is expected until March 2017.	2017

Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries:

ANNEX

to the

NATIONAL ACTION PLANS

UPDATE OCTOBER 2016

VOLUNTARY DATA PROVISION BY SERBIA

Coordinated by **Priority Area 1a** of the **EU Strategy for the Danube Region**.

1 Serbia

PLOVPUT (Directorate for Inland Waterways within the Ministry of Construction, Transport and Infrastructure) is responsible for fairway maintenance.

1.1 RS | Status report on main critical locations 2012 – Sept 2016

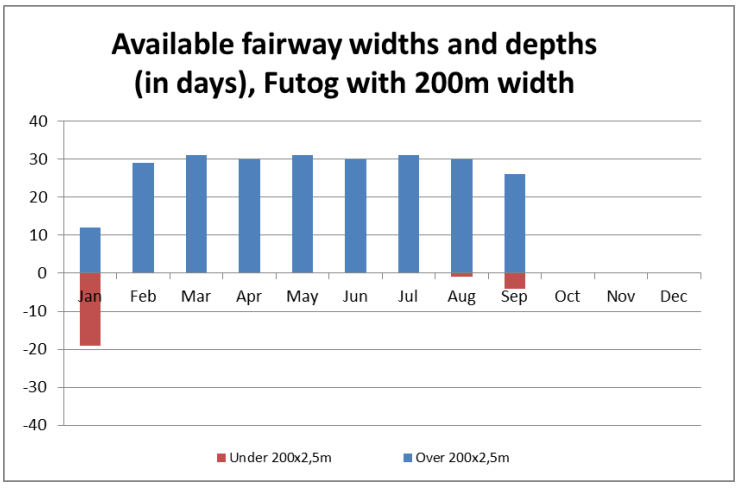
Number of days with fairway depths > 2.5m (on the fairway width reduced to 100 m – minimum LoS) on main critical locations:

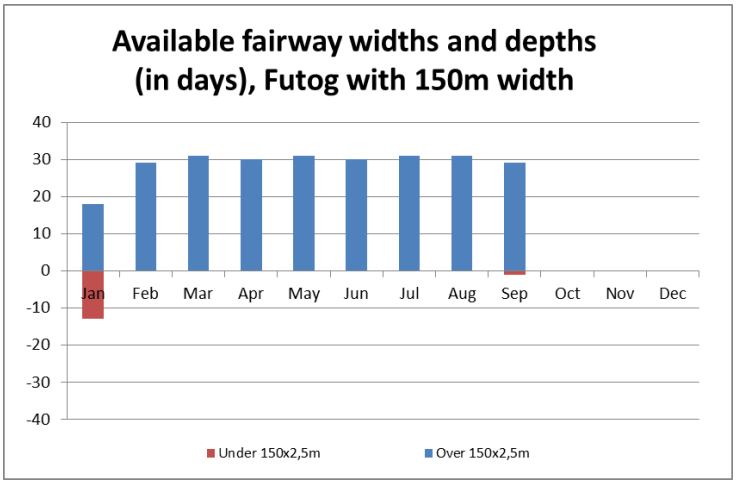
Danube

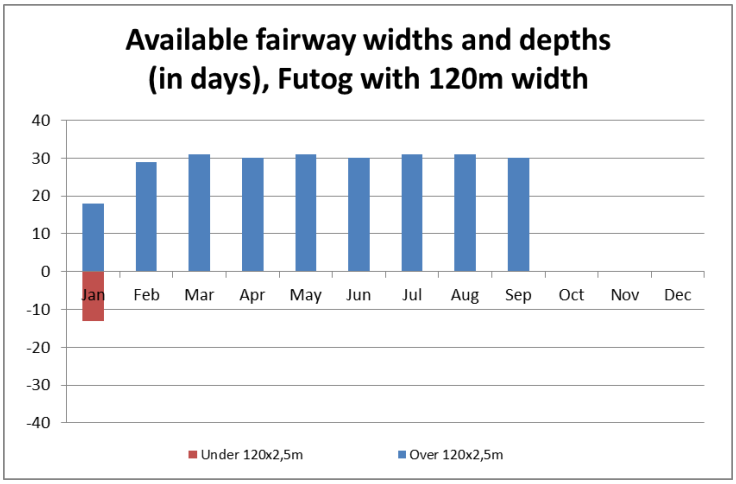
Critical location	2012	2013	2014	2015	Jan – Sept 2016
Futog	366	235	365	360	261

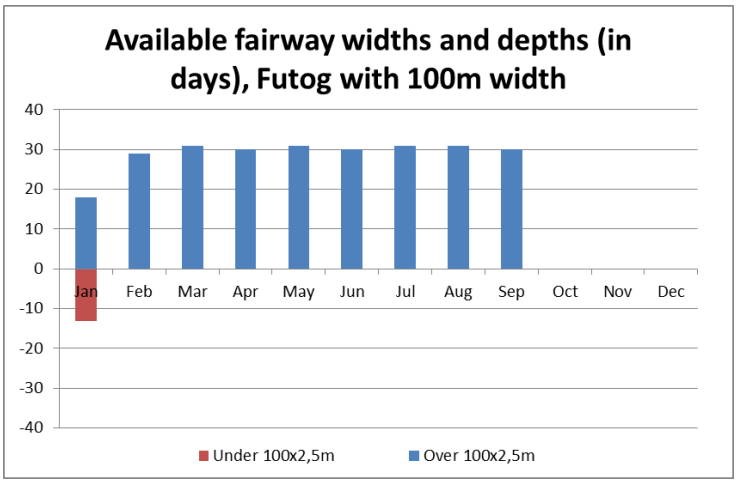
The critical sector Apatin is dealt with in the Croatian chapter. (Data is prepared jointly by the Croatian and Serbian administration).

The situation on the critical sector Futog was a bit worse in 2016 compared to the respective period of 2015, having in mind available fairway depth and width. Fairway width is still reduced to the minimum Level of Service, which is 100 m. On the 100 m fairway width, fairway depth of 2.5 m was achieved on 261 days (95.3%). On the 120 m fairway width, fairway depth of 2.5 m was also achieved on 261 days in 2016 (95.3%).









Sava River

Number of days with fairway depths > 2.5m (on fairway width 55 m) on main critical locations:

Critical location	2012*	2013*	2014	2015	Jan – Sept 2016
Sabac	n/a	n/a	306	216	255
Kamicak	n/a	n/a	346	203	244

1.2 RS | Hydrological conditions on main critical locations 2012 – Sept 2016

Danube

Critical location	Reference gauges	No. of days ≥ multiannual average flow discharge (m^3/s)				
		2012	2013	2014	2015	Jan – Sept 2016
Futog	Novi Sad	128	213	163	212	230

There are no flow discharge measurements on the Apatin gauging station, instead, discharge measurements from the Bezdan gauging station have been used for calculation.

1.3 RS | Water level information on main critical locations 2012 – Sept 2016

Danube

Critical location	Reference gauges	No. of days ≥ LNWL				
		2012	2013	2014	2015	Jan – Sept 2016
Futog	Novi sad	366	363	365	324	261

Gauging station Apatin: In the period January-September 2016, 13 days with water levels below LNWL have been recorder.

Water level data for the **gauging station Novi Sad** (which is the reference gauging station for the critical sector Futog): In 2016, 13 days with water levels below LNWL have been recorded.

1.4 RS | Key issues and related activities Jan – Sept 2016

	Key issues	*Need for action*	*Activities performed Jan – Sept 2016*
RS 01	Limitations of available data due to insufficient number of vessels and surveying equipment Limited budget for monitoring activities	Support acquisition/retrofit of up-to-date single-beam sounding equipment, software and vessels Enforce cooperation with AVP on joint stretch and improve data exchange	*No new surveying equipment has been acquired, due to limited budget resources. Exchange of hydrographic data with AVP has been performed, in line with established procedure, improving the frequency of hydrographic data collection.*

RS 02	Insufficient number of skilled staff	Secure education and provision of well-trained staff in the short, medium and long term Facilitate different geographical organization of surveying teams to allow more effective and efficient performances Enable expert exchange with other Danube waterway administrations	*At the end of 2015, decision of rationalization of the number of employees in the Governmental institutions have been announced, According to that decision, Directorate for Inland Waterways started procedure of reduction of the number of employees from 89 to 70. This reduction have been performed at the beginning of 2016.* *Different geographical organization of surveying teams to allow more effective and efficient performances is linked to the acquiring additional vessel and equipment for hydrographic survey activities. Since no acquisition of vessel and equipment for hydrographic activities have been performed, due to lack of budget resources and rationalization of the number of employees, no changes in geographical organization has been performed.* *No expert exchange with other Danube waterway administrations has been performed.*
RS 03	Insufficient number of automatic gauging stations in the free flowing section	Support acquisition and operation of additional gauging stations.	*No new automatic gauging stations have been acquired, due to limited budget resources.*
RS 04	Further absence of budget for dredging activities will lead to deterioration of navigation conditions, while the cost-benefit ratio of these activities is very favourable.	Secure sufficient and predictable financial means	*No dredging in the fairway have been performed, due to limited budget resources.*
RS 05	Old marking vessels and equipment	Support acquisition of up-to-date marking vessels and buoys	*No acquisition of up-to-date marking vessels and buoys have been performed, due to lack of budget resources.*
RS 06	Inefficiencies due to missing comprehensive database and web tool for navigation aids	Support development of a web application for marking activities on the Danube and its tributaries integrating Croatia and Romania	*Web application for marking activities on the Danube have been developed and put into operations.*

RS 07	Limited number of skilled personnel and inability to employ new staff due to Government regulation and restrictions	Secure education and provision of well-trained staff in the short, medium and long term	*At the end of 2015, decision of rationalization of the number of employees in the Governmental institutions have been announced, According to that decision, Directorate for Inland Waterways started procedure of reduction of the number of employees from 89 to 70. This reduction have been performed at the beginning of 2016.*
RS 08	The low number of gauging stations results in incomplete water level information and lead to inaccurate forecasts.	Support acquisition and operation of additional gauging stations.	*No activities performed, due to lack of budget resources.*
Other	Provision of dynamic fairway information to users	Lunching of Navigational Bulletin, an on-line fairway information services portal for the Republic of Serbia (Danube, Sava and Tisza Rivers)	*Navigational bulletin, and online portal for provision of dynamic fairway information services, was launched in 2015. The following dynamic information are available: water levels, water levels forecast, wind speed and direction, Notices to Skippers, waterway marking system, available depths at critical sectors, forecast of available depth at critical sectors, available vertical clearances at bridges, forecast of available vertical clearances at bridges, available depth at berths, forecast of available depth at berths, availability of locks, availability of river information services, contact information of relevant authorities. Data are available in Serbian and English language, and German and French language are under preparation.* *url:* *http://www.plovput.rs/navigational-bulletin*

1.5 RS | Review of rehabilitation and maintenance activities Jan – Sept 2016

The following activities relate to all critical locations as identified in the Rehabilitation and Maintenance Master Plan (version December 2014):

Riverbed surveying activities Jan – Sept 2016

Danube

River-km (from-to)	Frequency of surveying	Type of survey (single-/multi-beam)
1.299 – 1.170	1	Singlebeam – 200 m whole stretch and 50 m cross-sections for critical sector Futog

Sava

River-km (from-to)	Frequency of surveying	Type of survey (single-/multi-beam)
210.8 – 80.0	1	Singlebeam – 200 m whole stretch and 50 m cross-sections for critical sector Kamicak

Tisza

River-km (from-to)	Frequency of surveying	Type of survey (single-/multi-beam)
122.0 – 0.0	1	Singlebeam – 200 m whole stretch

Fairway relocation activities Jan – Sept 2016

Danube

River-km (from-to)	Frequency of relocation interventions	Comments
1.267 – 1.261	1	*Realignment and reduction of the width of the fairway at the critical sector Futog due to dynamic morphological developments*

Sava

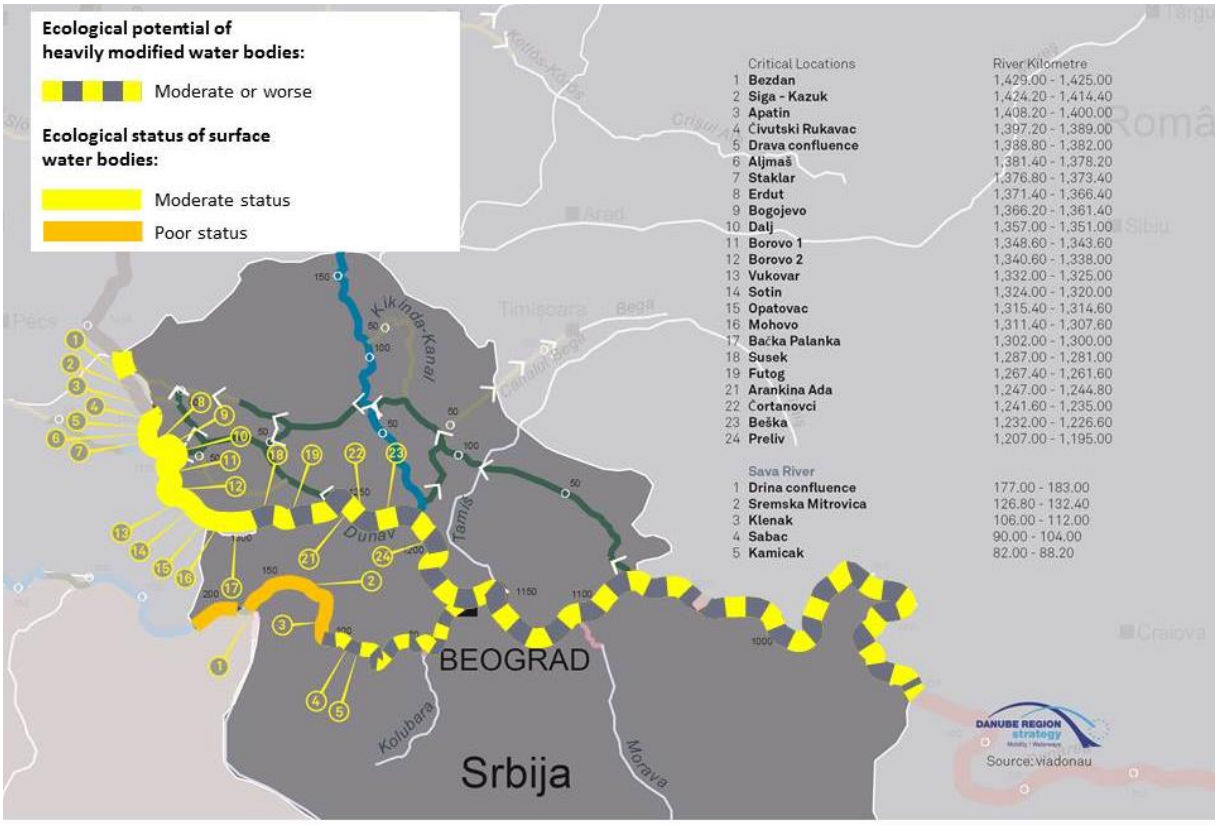
River-km (from-to)	Frequency of relocation interventions	Comments
88.2 – 82.0	1	*Realignment and reduction of the width of the fairway at the critical sector Kamicak in accordance to available depth*
112.0 – 106.0	1	*Realignment and reduction of the width of the fairway at the critical sector Klenak in accordance to available depth*

Dredging activities Jan – Sept 2016

No dredging activities performed in the fairway. Dredging of sediment from entrance to winter port and from winter port on the Danube River in Novi Sad is planned for the IV quarter of 2016.

1.6 RS | Summary of current ecological status and environmental impacts

The following map displays the ecological status and ecological potential of the Serbian Danube – according to the Danube River Basin Management Plan/Update 2015 – against the background of the critical navigation locations in Serbia.



Ecological status and ecological potential of surface water bodies

No data provided

Measures to improve environmental conditions

No data provided

Navigation maintenance measures and environmental impacts

No data provided

1.7 RS | Budget status

No budget data is provided by Serbia.

1.8 RS | Outlook: planned actions, milestones and funding sources

No activities planned due to budget limitations.