INTERMEDIATE ENVIRONMENTAL MONITORING REPORT AFTER WORKS Nº 1

PRELIV – SUMMARY OF RESULTS

Introduction

The main objective of this environmental report during works is to address the base values of the main parameters identified during the elaborations of the EMRbW. These values were established during the Inception Phase and will serve as the base for evaluation of effects of river training and works to the environment.

According to the ToR, the first report will be submitted 6 months after the beginning of the DNP, covering effects of river training works. second report must be submitted by the S&EM Services Contractor 12 months after the beginning of the DNP, covering effects of both river training and dredging works), identifying all changes in environmental parameters compared to the base values identified in the Environmental Monitoring Report Before Works, also arguing the reasons for these changes, as well as their long-term impact to the integrity of the affected areas.

Works began in Preliv on November 7th 2019 and officially ended 11th August. So that, after six months this report has the purpose of the environment status during the Defect Notification Period. The Environmental Monitoring Report after works nº 1 covers the following fields.

The Environmental Monitoring Report nº 2 covers the following fields:

- Hydromorphology
- Sediment and water quality
- Waste
- Biology
  Phytoplankton
  Macrozoobenthos
  Vegetation (*Limosella aquatica)*
  Birds *(Charadrius dubius and Riparia riparia)*
  Fish *(Acipenser ruthenus)*
- Development of vegetation and riparian areas
- Protected Areas and Ecological Networks

The table below shows the works to be carried out in the critical sector Preliv and their exact location according to the Final Design:

Nº	Name of critical sector	Type of works	Chainage from	to
	Preliv	Chevron nº 1	1200+600	

The report shows the status of environment once completed three months of works, according to ToR statements.

Description of work site

Construction works were performed on one location Chevron nº 1. According to Engineer's proposal, chevron nº2 will not be executed due to the changes occurred in the riverbed since the project were designed.

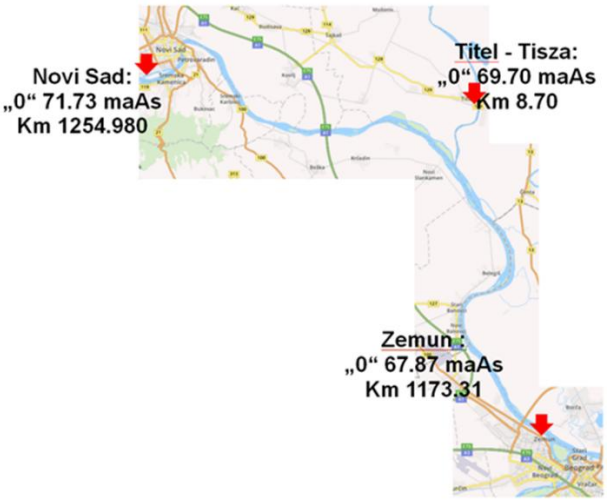
Floating barge with construction material is used as a temporary storage for solid material like steel armature (reinforcement bar) and new rolls of geotextile are into the foil Floating office.

Status of the works after 6 months

As works ended last August 2020, there is not any activity associate to the project in this sector..

Project context

Gauging station Zemun is referent station for stretch Preliv.



Preliv stretch has the right river band shape with a radius that diminishes gradually. The long straight strip of the Danube River precedes Preliv stretch. On this portion, Danube moves a severe amount of the bedload in particular underpinned by the discharge and bedload from the Tisza River. Such disposition upstream of the observed stretch facilitates the morphological development on the stretch and bedload deposition. The most upstream part of the stretch (the stretch entrance) is narrow (about 500m) with a talweg depth of about 6.5m. The cross-section is U shaped and provides optimal transportation capacity for discharges and bedload.

A small river island covered by vegetation is located in the middle of the stretch. The vegetation density and trees size imposes that river island on this position exists for a long time. The aerial photos from 2011 confirm island position and persistence. On the newest charts, it is notable that from km 1203+350 to km 1202+000, along the left river bank (upstream of the existing river island) is located a new sand deposit that was not present on the plots charted in 2011.

In line with the end of the river island is constructed chevron. It has a horseshoe shape and role to split the river current and provide shadow for sand deposition behind the construction.

The morphological changes between the two surveying campaigns were not considerable. The sandbank erosion along the side is notable but not massive and dramatic. Its final effect is directed towards cementing the current position and preventing further sandbar spreading than shaping the morphology. The branches between the river island and right riverbank continued to silt up permanently.

The riverbank erosion or other adverse effects were not noticed

Review of water and sediment quality results

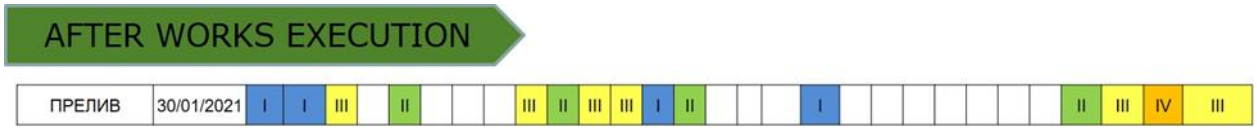
Results of the monitoring of water and sediment quality monitoring after works execution finalization period are shown that there are no relevant changes in tested parameters values.

Results obtained within the first sampling campaign carried out on 30th January 2021, show that the quality of the Danube water sample at this location predominantly corresponds to class I water quality, except for parameters such as total phosphorus, nitrates and BOD5, which correspond to class II water quality and parameters dissolved oxygen, nitrites and total nitrogen corresponding to water quality lll class.

Regarding the microbiological classification of the quality of this sample, it can be concluded that the Danube water at this location belongs to class II for coliform bacteria, class II for aerobic heterotrophs and coliform bacteria of fecal origin and class IV for intestinal enterococci.

The presence of analysed priority and priority hazardous substances was not recorded in the examined sample.

The results of sediment quality obtained during this campaign show that all values of the examined parameters are below the limit values, and most of them have not been detected.



Quality of parameters temperature, suspended matters and mineral oils of additionally taken

Waste

During this period there has been no activity on the sector, therefore it has not been necessary to control whether there were discharges into the river from the boats.

Phytoplankton

This is typical phytoplankton community structure for this season. Community structure was uniform along depth gradient and among localities.

Macrozoobenthos

Mussels population from sediment was represented by several individuals of Zebra mussel (*Dreissena polymorpha*), one individual of Quagga mussel (*Dreissena rostriformis bugensis)* and one individual of Asian clam (*Corbicula fluminea*).

.**Sector**	***Unio* sp.**	***Other species***
Sector 24 Preliv	--	*Corbicula fluminea* *Dreissena polymorpha* *Dreiseena rostriformis bugensis*

Birds

Bird's fauna is reduced to several species. Most dominant in number is European herring gull (*Larus argentatus*) with population on sand bar, with approximately 30 individuals. Mallard (*Anas platyrhynchos*) is occasionally present with individuals on water and in flight, with around 8-10

individuals. Several individuals of Little grebe *(Tachybaptus ruficollis)* were present in floating on water, where they were searching for a food.

Sector	*Charadrius dubius*	*Riparia riparia*	*Other species*
Sector 24 Preliv	--	--	*Tachybaptus ruficollis* *Larus argentatus* *Anas platyrhynchos*

Fishes

No one individual of fish has been caught in this survey, including pulling the net and electrofishing. The cause of it may be very high water level, which influenced on fish populations to move and aggregate on habitats with less water depths.

Sectors	*Acipenser ruthenus*	*Other species*
Sector 24 Preliv	--	--

Macrovegetation

Vegetation is in hibernation. Plants has stable root system, except some individuals on the edge of riverbank. One interesting finding is presence of fruits of Dog rose (*Rosa canina*) on tree branches under snow.

Sector	*Species: Limosella aquatica*	Other species
Sector 24 Preliv	No results	*Populus x euroamericana* *Populus x canadensis* *Populus alba* *Salix alba* *Fraxinus sp.* *Acer rubrum* *Robinia pseudoacacia* *Morus nigra* *Morus rubra* *Tilia sp.* *Acer negundo* *Ulmus sp.* *Xanthium strumarium* *Rosa canina*

Plants

Not any individual of species *Limosella aquatica* and *Lindernia palustris* have been found.

Sector	Species*: Limosella aquatica* Species*: Lindernia palustris*
Sector 24 Preliv	No results

Development of vegetation

Forest and herbaceous plants are in good health status. Basic forest ground layer is partially under the water and has high percentage of humidity. Forest plant are represented by species from families *Salicaceae, Oleaceae, Sapindaceae, Fabaceae, Moraceae, Malvaceae, Ulmaceae, Asteraceae* and *Rosaceae*.

Riparian areas

Due to high water level, some plant species and their habitats are covered by water. Invertebrate animals are represented by Mussels (*Dreissena polymorpha, Dreissena bugensis, Corbicula fluminea*), while vertebrata are represented by several bird species, predominantly by European herring gull (*Larus argentatus)*. In this period, high water level strongly influences on plant and riparian habitats. Water enters in the habitat and makes temporarily sleeves or little meanders.

Protected areas

During this period, negative effect over the National Park of "Fruška Gora" due to the activities of this project have not been observed.

Ecological network

According to Decree on Ecological Network ("Official Gazette RS" No. 102/2010), in the wider area of work zone, except Danube river in general, are no ecological important areas, ecological corridors and protective zones

Summary of results

After field surveys during November 2017, August 2018, October 2019, January and May 2020, the following target species have been found **in sector Preliv.**

Period	Macrozoobenthos *Unio* sp.	Fishes *Acipenser ruthenus*	Plants *Limosella aquatica*	Plants *Lindernia palustris*	Birds *Riparia riparia*	Birds *Charadrius dubius*
November 2017	-	-	-	-	-	-
August 2018	-	-	-	-	-	-
October 2019	*Several Unio tumidus* *3 Unio pictorum*	**23 individuals**	-	-	-	-
January 2020	*Several Unio tumidus* *Several Unio pictorum*	-	-	-	-	-
May 2020	Several *Unio tumidus*	**29 individuals**				
January 2021	-	-				

Summary of main impacts in the sector during this period

In this sector is defined the construction of one river training structure: Chevron nº 1.

Several monitoring has been executed during construction phase, which results have been compared with surveys carried out in February-March 2021 in order to compare the status of environment six months after works finalization.

Regarding water and sediments, after these six months it is possible to conclude that there are no significant effects over these parameters. The obtained results during field surveys after works are significantly similar to the previous ones. This can be interpreted as the works have not affected the quality of water and sediments in the vicinity of critical sector of Preliv.

From the point of view of biology, the results show that the nature has not been affected by the works, which confirm the conclusion obtained in previous reports.

Bearing in mind that works were being executed from the water, the riparian vegetation existing in the river banks not suffered any impact except a little dust deposited on leaves. This impact cannot be avoided because mainly depends on wind direction. However, it is not significant and the general status of riparian habitat remains in good conditions.

None of individuals of protected species of plants had been affected during those months and wildlife seemed not to be impressed by the presence of machinery and workers. Protected species of birds have not been detected in Preliv in any of the field surveys.

This first survey after six months without works disturbances shows how the environment in vicinity of structure remains in the same conditions as was addressed in monitoring made before works.

Protective and corrective measures

As works in critical sector Prelivi finished in August 2021, there no need to apply protective or corrective measures.the main species mentioned in the EIA.

Conclusions & Recommendations

It is necessary to monitor the same parameters after six month to complete one year after works finalization.

Works that are being executed in another sector will be assess in different report.