MONITORING THE ENVIRONMENTAL IMPACT OF THE WORKS REGARDING THE IMPROVING OF THE NAVIGATION CONDITIONS ON THE DANUBE RIVER BETWEEN CALARASI AND BRAILA, KM 375-175

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FINAL VERSION

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CONTENT

1. INTRODUCTION

1.1. Brief presentation of monitored objectives

I. This report presents the monitoring objectives for the period 01-30 November 2017.

For post-construction phase the monitoring frequencies for the environmental components are presented in Table 1.1.

II. *3D numerical modeling*

During this period have been conducted single-beam bathymetric data aquisition.

In addition to organizing and properly conducting the field campaigns, a permanent cooperation has been ensured between the Coordinator and Partners.

Table 1.1. Post-construction phase - monitoring objectives - frequencies with differences in the Critical Points

MONITORING OBJECTIVES				Critical points							
				Main Critical Points			Secondary Critical Points				
				01	02	10	03A	03B	04A	04B	07
A.	AIR			S	S	S	Q	Q	Q	Q	Q
B.	NOISE			S	S	S	Q	Q	Q	Q	Q
C.	SOIL			S	S	S	Q	Q	Q	Q	Q
D.	HYDROMORPHOLOGY	Water level		C	C	C	Q	Q	Q	Q	Q
		Water velocity		M	M	M	Q	Q	Q	Q	Q
		Turbidity		C	C	C	Q	Q	Q	Q	Q
		2D bathymetric elevation		M	M	M	Q	Q	Q	Q	Q
		3D bathymetric elevation		Q	Q	Q	Not the case				
E.	WATER QUALITY			Q	Q	Q	S	S	S	S	S
	SEDIMENTS			Q	Q	Q	S	S	S	S	S
F.	AQUATIC FLORA			July			Q	Q	Q	Q	Q
	AQUATIC FAUNA			Q	Q	Q	Q	Q	Q	Q	Q
	F. is STURGEONS AND BARBELL	STURGEONS		Two seasons / year (February - May / August – December)			Two seasons / year (February - May / August – December)				
		BARBELL		One season/year April- May (breeding season)			One season/year April- May (breeding season)				
	F. i OTHER FISH SPECIES			Annually (April- May, July - September)			Annually (April- May, July - September)				
G.	TERRESTRIAL FLORA			Annually in July			Annually in July				
	TERRESTRIAL FAUNA/ AVIFAUNĂ			Annually (April - June, September - October, January)			Annually (April - June, September - October, January)				
H.	NATURA 2000 SITES	SCI	ICHTYOFAUNA	Annually (April- May, July - September)			Annually (April- May, July - September)				
			AQUATIC FLORA	July			Q	Q	Q	Q	Q
			AQUATIC FAUNA	Q	Q	Q	Q	Q	Q	Q	Q
			TERRESTRIAL FLORA	Annually in July			Annually in July				
			TERRESTRIAL FAUNA	Annually (April - June, September - October, January)			Annually (April - June, September - October, January)				
		SPA	AVIFAUNĂ	Annually (April - June, September - October, January)			Annually (April - June, September - October, January)				
J.	3D numerical modeling			M							

NOTĂ: QC – quasi continuous | M- monthly | Q – quarterly | S – semester | C – continuous

1.2. Overview

The elements related to the sampling periods for the objectives monitored in November 2017 for post-construction period are presented in Table 1.2.

Table 1.2. Objectives monitored during the period of 01.11-30.11.2017

Objectives monitored		Sampling period / ongoing activities	Campaign	Critical Points							
				Main Critical Points			Secondary Critical Points				
				01	02	10*)	03A	03B	04A	04B	07
A.	AIR	-	-	NO	NO	NO	NO	NO	NO	NO	NO
B.	NOISE	-	-	NO	NO	NO	NO	NO	NO	NO	NO
C.	SOIL	-	-	NO	NO	NO	NO	NO	NO	NO	NO
D.	HYDROMORPHOLOGY	01, 03, 06, 07, 08, 09, 10.11.2017	C79	YES	YES	NO	NO	NO	NO	NO	NO
E.	WATER QUALITY	-	-	NO	NO	NO	NO	NO	NO	NO	NO
	SEDIMENTS	-	-	NO	NO	NO	NO	NO	NO	NO	NO
F.	AQUATIC FLORA	16.11.2017	C28 - macrophytes	NO	NO	NO	YES	YES	YES	YES	YES
	AQUATIC FAUNA	16.11.2017	C29	YES	YES	NO	YES	YES	YES	YES	YES
	F.is. STURGEONS	20-23.11.2017	C37	YES	YES	NO	YES	YES	YES	YES	YES
	F.is. BARBELL	-	-	NO	NO	NO	NO	NO	NO	NO	NO
	F.i. OTHER FISH SPECIES	-	-	NO	NO	NO	NO	NO	NO	NO	NO
G.	TERRESTRIAL FLORA	-	-	NO	NO	NO	NO	NO	NO	NO	NO
	TERRESTRIAL FAUNA/ AVIFAUNĂ			NO	NO	NO	NO	NO	NO	NO	NO
H.	NATURA 2000 SITES			NO	NO	NO	NO	NO	NO	NO	NO
I.	BUILDING SITE	-	-	NO	NO	NO	NO	NO	NO	NO	NO

NOTE:

*) In main critical point CP10 the post-construction monitoring period has ended in August 1st, 2017
YES – samples were taken / activities were conducted in the field
NO - no samples taken / no activities conducted in the field

Means of transportation used for sampling/conducting activities and samples analysis are presented in Table 1.3.

Table 1.3 Means of transportation

Field	Transportation means
WATER	trimaran type boat with 25 CP engine
	Laguna type boat with 25 CP engine
	Lotus type boat with 20 CP engine
	Boat - autolaboratory – with trailer - RANIERI CLF22 model, Suzuki engine, 175 CP
	Boat ANA 5.0 with trailer, Suzuki engine, 40 CP
	Boat ANA 5.5 with trailer, Suzuki engine, 70 CP
LAND	Autolaboratory – Pickup jeep Toyota Hilux Double Cab 4x4
	Autolaboratory – Jeep Toyota LandCruiser
	Autolaboratory for air monitoring
	Autolaboratory for water and soil monitoring

2. STATE OF THE PROGRESS ACTIVITIES

2.1. State and progress on each activity / critical point on specific monitoring objectives

The equipments used for sampling/ongoing activities and samples analysis are presented in table 2.1.

Table 2.1 Main devices

Objectives monitored		Sampling equipment	Laboratory equipments / ongoing activities
A.	**AIR**	- LECKEL dust sampler - Auto-laboratory - Desaga pump - GPS - Autolaboratory for air monitoring	- Analytical balance KERN 770-14 - Atomic absorption spectrometer with graphite furnace AAS - UNICAM 939
B.	**NOISE**	- Sound Level Meter and Microphone, Brüel & Kjær Denmark - GPS	
C.	**SOIL**	- Burkle sampler - GPS	- ION-CROMATOGRAPH DIONEX ICS 1500 – anions, cations - Multi N/C Analytic Jena (total carbon analyzer and organic carbon) - Spectrometer ATI UNICAM UV-VIS - Mass Spectrometer with inductively coupled plasma ICPMS NexIon 350x equiped with hydrides generator system and autosampler system with autodiluter
D.	**HYDROMORPHOLOGY**	- Portable Turbidimeter type VELP SCENTIFICA - mini ADP SONTEK - Monitoring systems for turbidity and level - Monitoring systems for flow - velocities - Portable Turbidimeter HANNA Instruments - ADCP SONTEK River Surveyor R9 - Multiparameter YSI for turbidity and level measurements - Bathimetric System 3D - Konsgberg GeoSwath Plus Compact, 250 kHz - Acoustic Doppler Current Profiler (ADCP) - Teledyne RD Instruments RiverRay - ROV (Remote Operate Vehicle) – ROVBUILDER Mini 600 - GPS	- Turbidimeter HACH RATIO/RX - Device for water quality parameters measurements, type 1, Manta 2-Sub3.5+Amphibian 2 - Device for water quality parameters measurements, type 2, Manta 2-Sub4.0+Amphibian 2
E.	**WATER QUALITY**	- Ruttner sampler - GPS	- Spectrometer with atomic absorbtion VARIAN - Spectrometer CARY BIO 300 U.V.-VIS - Spectrofotometer with atomic absorbtion – with flame, graphyte oven, hydrides system with amalgamation and automatic system for solids CONTRAA - Automatic analyzer in continous segmented flux model SAN++ - Mineralization system Speedwave Four with microwave
	SEDIMENTS	- Petersen sampler - GPS	- Cryo – drying system ALPHA 2-4 LSCplus - Gas cromatograph coupled with mass spectrometer for dioxine screening, CPF, CPB and pesticides, with autosampler r-GC MS MS 15-02 - Drying stove - Sieving system for sediment samples - Ethos - digester with microwave for sediments - GC-MS-VARIAN - Spectrometer with atomic absorbtion SOLAAR M5 - Mineralization System Speedwave Four with microwave

Objectives monitored		Sampling equipment	Laboratory equipments / ongoing activities
F.	AQUATIC FLORA	- planktonic nets - Patalas sampler - dredges 20cmx50 cm - Square wooden frame, with surface of $1m^2$ - GPS	- reverse microscope ZEISS - OPTIKA B-600T microscope - KRUSS microscope - Canon A570 IS camera for microscope
	AQUATIC FAUNA	- zooplanktonic nets - zoobenthic nets - Petersen sampler - benthos grabbing dredges - benthos sampling probe - GPS	- Stereomicroscope Olympus - Binocular Zeiss - Microscope ZEISS - Canon A570 IS camera for microscope - magnifying glass
	F.is. STURGEONS AND BARBELL	- Fixed monitoring system DKTB - Floating monitoring system type DKMR-01T - Complex monitoring, alarming and control system type DK-PRB-01U - Monitoring system with ultrasonic transmitter type 40 - Monitoring system with ultrasonic transmitter type 60 - Mobile receiver for sturgeons' telemetry Vemco VR 100 - GPS	- Reception station of WR2W - VR100 mobile receptor - Multiparameter YSI - Endoscope for sturgeon gender determining WELLD WED 3000V - Radar Lowrance Elite 9 CHIRP – 4 pieces
	F.i. OTHER FISH SPECIES	- High power electrical fishing device Hans Grassl EL 65 II GI - Low power electrical fishing device Hans Grassl EL 60 II HI - Ihtyometer - Electronic scale - GPS - binocular microscope - stereo microscope	
G.	TERRESTRIAL FLORA	Binoculars, GPS, notebook, standard forms, camera	
	TERRESTRIAL FAUNA/ AVIFAUNĂ	Binocular, lunette, camera, GPS	
H.	NATURA 2000 SITES	Binocular, lunette, camera, GPS	
I.	BULDING SITE ACTIVITY	- DESAGA pump - Autolaboratory - Sound Level Meter and Microphone, Brüel & Kjær - dust sampler LECKEL	

2.1.1 Critical Point 01 monitoring, Bala branch area and Caragheorghe sand strip

2.1.1.A. Air quality monitoring

The activities carried out during 01/30.11.2017 related to air quality monitoring for each critical point are summarized in Table 2.1.1.A.1.

Table 2.1.1.A.1 Specific objective: air quality monitoring

No.	Activities
1.	Contribution to Monthly Report 79
2.	Contribution to Interim Report 17

According to post-construction monitoring objectives, in November 2017 for air quality monitoring in this main critical point CP 01 is not provided a sampling campaign according to Table 1.2. In post-construction period (in this main critical point CP01 was made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.1.B. Noise monitoring

The activities carried out during 01/30.11.2017 related to noise level monitoring, for each critical point are summarized in Table 2.1.1.B.1.

Table 2.1.1.B.1. Specific objective: noise monitoring

No.	Activities
1.	Contribution to Monthly Report 79
2.	Contribution to Interim Report 17

According to post-construction monitoring objectives, in November 2017 for noise level monitoring in this main critical point CP 01 is not provided a measurements campaign as presented in Table 1.2. In post-construction period (in this main critical point CP01 was made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.1.C. Soil quality monitoring

Activities conducted during 01/30.11.2017, regarding soil quality monitoring, in this critical point, are summarized in Table 2.1.1.C.1.

Table 2.1.1.C.1. Specific objective: soil quality monitoring

No.	Activities
1.	Contribution to Monthly Report 79
2.	Data processing for Interim Report 17

No soil sampling have been made during this period in this critical point.

2.1.1.D. Hydromorphological monitoring

In September 2017, high-resolution multi-beam measurements were performed and during September-November 2017 single-beam bathymetric measurements, flow and velocity measurements were made on the sections, but due to the fact that budget line *III.2. The acquisition of bathymetric data necessary for mathematical modeling* no longer has funds, were not included in the reports related to the mentioned periods (Monthly Report 77 - September 2017, Monthly Report 78 - October 2017 and Monthly Report 79 - November 2017).

The activities reported in November 2017 are synthetically presented in Table 2.1.1.D.1.

Table 2.1.1.D.1. Specific objective: hydromorphological monitoring

No.	Activities
1.	Turbidity and level continuous measurements in the 4 automatic hydrometric stations

2.1.1.E. Water and sediments monitoring

The activities carried out during 01/30.11.2017, related to water and sediments quality monitoring, in this critical point are summarized in Table 2.1.1.E.1.

Table 2.1.1.E.1. Specific objective: water and sediments quality monitoring

No.	Activities
1.	Contribution to Monthly Report 79
2.	Data processing for Interim Report 17

During this period no water and sediments sampling have been made.

2.1.1.F. Aquatic flora and fauna monitoring

The activities carried out during this reporting period, regarding aquatic fauna and flora (except for ichtyofauna), are summarized in Table 2.1.1.F.1.

Table 2.1.1.F.1 Specific objective: Aquatic flora and fauna monitoring

No.	Activities
1.	Organizing the sampling campaign for aquatic macroinvertebrates (Table 1.2)
2.	Conducting the sampling campaign for aquatic macroinvertebrates (sampling bulletins for aquatic flora and fauna - Annex 6.2.1)
3.	Laboratory analysis for aquatic macroinvertebrates collected samples
4.	Processing and preliminary analysis of the obtained results

From CP01 were collected *benthic macroinvertebrates* samples, as presented in Table 2.1.1.F.2.

Table 2.1.1.F.2. Samples of benthic macroinvertebrates

Critical Point Type	Critical Point (CP)	Section	Qualitative and quantitative analysis	
			Left bank	Right bank
Main	01	1	1	1
		2	1	1
		3	1	1
		4	1	1
TOTAL			**8**	

For each sampling point, have been determined geographical coordinates. Samples were labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

2.1.1.F.is. Sturgeons and barbell migration monitoring

In November, there was no scientific fishing for sturgeon species due to the fact that the National Agency for Fisheries and Aquaculture suspended the special authorization by decision no. 613.01.11.2017 until 31.12.2017 for reasons independent of the institute. Thus, only the ultrasonic tagged specimens have been monitored up to this date both with monitoring systems and VR100. In order to determine the migration trails, data were downloaded from the systems placed in this Critical Point.

2.1.1.F.i. Other fish species monitoring

In November are not provided any activities for other fish species monitoring.

2.1.1.G. Terrestrial flora and fauna monitoring

2.1.1.G.1 Terrestrial flora

During this period have not been made monitoring activities for terrestrial flora.

2.1.1.G.2 Terrestrial fauna/ Avifauna

During this period have not been made monitoring activities for avifauna.

2.1.1.H. Natura 2000 sites monitoring

During this period have not been made monitoring activities for Natura 2000 sites.

2.1.1.I. Working site activities monitoring and intervention plan compliance in case of accidental pollution

Due to completion of hydrotechnical construction, has not been necessary the construction site activity monitoring. Works reception have been made in April 27th, 2016.

2.1.2. Critical Point 02 monitoring, Epuraşu Island area (Lebăda)

2.1.2.A. Air quality monitoring

The activities carried out during 01/30.11.2017 related to air quality monitoring in this critical point are those presented in Table 2.1.1.A.1.

According to post-construction monitoring objectives, in November 2017 for air quality monitoring in this main critical point CP02 is not provided a sampling campaign according to Table 1.2. In post-construction period (in this main critical point CP02 was made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.2.B. Noise monitoring

The activities carried out during 01/30.11.2017, regarding noise level monitoring, in this critical point are those presented in Table 2.1.1.B.1.

According to post-construction monitoring objectives, in November 2017 for noise level monitoring in this main critical point CP 02 is not provided a measurements campaign according to Table 1.2. In post-construction period (in this main critical point CP02 was made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.2.C. Soil quality monitoring

Activities conducted during reporting period, regarding soil quality monitoring, for this critical point are those presented in Table 2.1.1.C.1.

During this period no soil samples have been collected.

2.1.2.D. Hydromorphological monitoring

In September 2017, high-resolution multi-beam measurements were performed and during September-November 2017 single-beam bathymetric measurements, flow and velocity measurements were made on the sections, but due to the fact that budget line *III.2. The acquisition of bathymetric data necessary for mathematical modeling* no longer has funds, were not included in the reports related to the mentioned periods (Monthly Report 77 - September 2017, Monthly Report 78 - October 2017 and Monthly Report 79 - November 2017).

The activities reported in November 2017 are synthetically presented in Table 2.1.2.D.1:

Table 2.1.2.D.1. Specific objective: hydromorphological monitoring

No.	Activities
1.	Turbidity and level continuous measurements in the 3 automatic hydrometric stations

2.1.2.E. Water and sediments monitoring

Activities performed during reporting period, regarding water and sediment quality monitoring, reported to this critical point are those presented in Table 2.1.1.E.1.

In this period have not been made any sampling for water and sediments.

2.1.2.F. Aquatic flora and fauna monitoring

The activities carried out during this reporting period, regarding aquatic fauna and flora (except for ichtyofauna), are summarized in Table 2.1.2.F.1.

Table 2.1.2.F.1. Specific objective: Aquatic flora and fauna monitoring

No.	Activities
1.	Organizing the sampling campaign for aquatic macroinvertebrates (Table 1.2)
2.	Conducting the sampling campaign for aquatic macroinvertebrates (sampling bulletins for aquatic flora and fauna - Annex 6.2.1)
1.	Laboratory analysis for aquatic macroinvertebrates collected samples
2.	Processing and preliminary analysis for the obtained results

In Table 2.1.2.F.2 are presented ***benthic macroinvertebrates*** samples collected from CP 02.

Table 2.1.2.F.2. Samples of benthic macroinvertebrates

Critical Point Type	Critical Point (CP)	Section	Qualitative and quantitative analysis	
			Left bank	Right bank
Main	02	3	1	1
		4	1	1
		5	1	1
TOTAL			**6**	

For each sampling point, have been determined geographical coordinates. Samples were labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

2.1.2.F.is. Sturgeons and barbell migration monitoring

In CP 02 have been monitored sturgeons migration with the monitoring systems placed on the Old Danube.

2.1.2.F.i. Other fish species monitoring

In November were not provided monitoring activities for other fish species.

2.1.2.G. Terrestrial flora and fauna monitoring

2.1.2.G.1 Terrestrial flora

During this period were no activities for terrestrial flora monitoring.

2.1.2.G.2 Terrestrial fauna/ Avifauna

During this period were no activities for avifauna monitoring.

2.1.2.H. Natura 2000 sites monitoring

During this period were no activities for Natura 2000 sites monitoring.

2.1.2.I. Work site activities monitoring and intervention plan compliance in case of accidental pollution

Due to completion of hydrotechnical construction, has not been necessary the construction site activity monitoring. Works reception have been made in November 26th, 2015.

2.1.3. Critical point 10 monitoring, Caleia Branch (Ostrovu Lupu)

2.1.3.A. Air quality monitoring

The activities carried out during reporting period 01/30.11.2017 regarding air quality monitoring, in this critical point CP10 are summarized in Table 2.1.3.A.1.

Table 2.1.3.A.1. Specific objective: monitorizarea calităţii aerului

No.	Activities
1.	Contribution to Monthly Report 79
2.	Contribution to Interim Report 17
3.	Contribution to Phase Report for post-construction monitoring in CP10

For critical point CP 10, in August 1st 2017, the 3-year post-construction monitoring period

has ended, as such in November 2017 no air quality monitoring activities have been carried out.

2.1.3.B. Noise monitoring

The activities carried out during reporting period 01/30.11.2017, related to noise level monitoring, reported for this critical point are those presented in Table 2.1.3.B.1.

For main critical point CP 10, in August 1st 2017 has ended the 3 years period for post-construction monitoring, as such in November 2017 no monitoring activities for noise level have been carried out.

2.1.3.C. Soil quality monitoring

In this critical point no longer performed monitoring activities for soil quality, due to post-construction monitoring period ended in August 2017.

2.1.3.D. Hydrophological monitoring

For main critical point CP10, in August 1st 2017 the post-construction monitoring period has ended.

2.1.3.E. Water and sediments quality monitoring

In this critical point are no longer any monitoring activities for water and sediments quality, due to post-construction monitoring period has ended in August 1st 2017.

2.1.3.F. Aquatic flora and fauna monitoring

During the reporting period, no monitoring activities for aquatic flora and fauna have been made.

2.1.3.F.is. Sturgeons and barbell migration monitoring

For main critical point CP10, in August 1st 2017 the post-construction monitoring period has ended.

2.1.3.F.i. Other fish species monitoring

For main critical point CP10, in August 1st 2017 the post-construction monitoring period has ended.

2.1.3.G. Terrestrial flora and fauna monitoring

2.1.3.G.1 Terrestrial flora

In this period have not been made monitoring activities for terrestrial flora.

2.1.3.G.2 Terrestrial fauna/ Avifauna

In this Critical Point no longer been conducted any monitoring activities for avifauna, due to the post-construction monitoring period ended in August 1st 2017.

2.1.3.H. Natura 2000 sites monitoring

In this Critical Point no longer been conducted any monitoring activities for Natura 2000 sites, due to the post-construction monitoring period ended in August 1st 2017.

2.1.3.I. Work site activities monitoring and intervention plan compliance in case of accidental pollution

Due to completion of hydrotechical works has not been necessary the building site activity monitoring. Works reception was carried out on August 1st, 2014.

2.1.4. Monitoring in the critical points 03÷07

2.1.4.1. Monitoring in CP 03 (upstream and downstream Seica)

2.1.4.1.A. Air quality monitoring

The activities carried out during 01/30.11.2017, related to air quality monitoring, reported for this secondary critical points are those presented in Table 2.1.4.1.A.1.

Table 2.1.4.1.A.1. Specific objective: Air quality monitoring

No.	Activities
1.	Contribution to Monthly Report 79
2.	Contribution to Interim Report 17

During 01/30.11.2017 no air quality monitoring activities have been made in this critical points (CP 03A and CP 03B).

2.1.4.1.B. Noise level monitoring

The activities carried out during 01/30.11.2017, related to noise level monitoring, in this secondary critical points are those presented in Table 2.1.4.1.B.1.

Table 2.1.4.1.B.1. Specific objectivemonitorizarea zgomotului

No.	Activities
1.	Contribution to Monthly Report 79
2.	Contribution to Interim Report 17

During 01/30.11.2017 no monitoring activities for noise level have been made in this critical points (CP 03A and CP 03B).

2.1.4.1.C. Soil quality monitoring

The activities carried out during reporting period, related to soil quality monitoring, in this critical point are summarized in Table 2.1.4.1.C.1.

In this period have not been made any soil sampling in this critical point.

2.1.4.1.D. Hydromorphological monitoring

No activities regarding hydromorphological monitoring during this period.

2.1.4.1.E. Water and sediments quality monitoring

Activities performed during this reporting period, regarding water and sediment quality monitoring, in this Critical Point are those presented in Table nr. 2.1.1.E.1.

In this period have not been made water and sediments sampling.

2.1.4.1.F. Aquatic flora and fauna monitoring

The activities carried out during this reporting period, regarding aquatic fauna and flora (except for ichtyofauna), are summarized in Table 2.1.4.1.F.1.

Table 2.1.4.1.F.1. Specific objective: Aquatic flora and fauna monitoring

No.	Activities
1.	Organizing the sampling campaign for macrophytes and aquatic macroinvertebrates (Table 1.2)
2.	Conducting the sampling campaign for macrophytes and aquatic macroinvertebrates (sampling bulletins for aquatic flora and fauna - Annex 6.2.1)
3.	Laboratory analysis for aquatic macroinvertebrates collected samples
4.	Processing and preliminary analysis for the obtained results

From CP 03 were collected *macrophytes samples*, as presented in Table 2.1.4.1.F.2.

Table 2.1.4.1.F.2. Macrophytes samples

Critical Point Type	Critical Point (PC)		Qualitative and quantitative analysis	
			Left bank	Right bank
Secondary	03A	upstream	1	1
		downstream	1	1
	03B	upstream	1	1

		downstream	1	1
TOTAL			**8**	

For each sampling point, have been determined geographical coordinates. Samples were labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

In Table 2.1.4.1.F.3. are presented ***benthic macroinvertebrates*** samples collected from CP 03.

Table 2.1.4.1.F.3. Samples of benthic macroinvertebrates

Critical Point Type	Critical Point (CP)		Qualitative and quantitative analysis	
			Left bank	Right bank
Secondary	03A	upstream	1	1
		downstream	1	1
	03B	upstream	1	1
		downstream	1	1
TOTAL			**8**	

For each sampling point, have been determined geographical coordinates. Samples were labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

2.1.4.1.F.is. Sturgeons and barbell migration monitoring

In November, the monitoring of sturgeons' migration was carried out with the monitoring systems existent on Danube sector between km 248 and km 348.

2.1.4.1.F.i. Other fish species monitoring

In November are not provided monitoring activities for other fish species.

2.1.4.1.G. Terrestrial flora and fauna monitoring

2.1.4.1.G.1 Terrestrial flora

No monitoring activities for terrestrial flora were made in this period.

2.1.4.1.G.2 Terrestrial fauna / Avifauna

During this period no monitoring activities for avifauna were carried out.

2.1.4.1.H. Natura 2000 sites monitoring

During this period no monitoring activities for Natura 2000 sites were carried out.

2.1.4.1.I. Work site activities monitoring and intervention plan compliance in case of accidental pollution

The monitoring of the construction site was not necessary because the hydrotechnical works have not been started.

2.1.4.2. Monitoring in CP 04 /Ceacâru/Fermecatu

2.1.4.2.A. Air quality monitoring

Activities conducted during 01/30.11.2017 regarding air quality monitoring, related to this secondary critical points are those presented in Table 2.1.4.1.A.1.

During this period have not been performed any monitoring activities for air quality, in this secondary critical points (CP 04A and CP 04B).

2.1.4.2.B. Noise level monitoring

Activities conducted during 01/30.11.2017 regarding noise level monitoring, in this secondary critical points are those presented in Table 2.1.4.1.B.1.

During this period have not been performed any monitoring activities for noise level, in this secondary critical points (CP 04A and CP 04B).

2.1.4.2.C. Soil quality monitoring

Activities performed during this reporting period, regarding soil quality monitoring, in this critical point are summarized in Table 2.1.4.1.C.1.

In this period have not been soil sampling in this critical point.

2.1.4.2.D. Hydromorphological monitoring

No activities regarding hydromorphological monitoring during this period.

2.1.4.2.E. Water and sediments quality monitoring

Activities performed during this reporting period, regarding water and sediments quality, in this critical point, are identical with those presented in Table nr. 2.1.1.E.1.

In this period have not been made water and sediments sampling.

2.1.4.2.F. Aquatic flora and fauna monitoring

Activities performed during this reporting period, regarding aquatic flora and fauna (except for ichthyofauna) are summarized in Table 2.1.4.2.F.1.

Table 2.1.4.2.F.1. Specific objective: aquatic flora and fauna monitoring

No.	Activities
1.	Organizing the sampling campaign for macrophytes and aquatic macroinvertebrates (Table 1.2)
2.	Conducting the sampling campaign for macrophytes and aquatic macroinvertebrates (sampling bulletins for aquatic flora and fauna - Annex 6.2.1)
3.	Laboratory analysis for aquatic macroinvertebrates collected samples
4.	Processing and preliminary analysis for the obtained results

From CP 04 were collected ***macrophytes samples***, as presented in Table 2.1.4.2.F.2.

Table 2.1.4.2.F.2. Macrophytes samples

Critical Point Type	Critical Point (PC)		Qualitative and quantitative analysis	
			Left bank	Right bank
Secondary	04A	upstream	1	1
		downstream	1	1
	04B	upstream	1	1
		downstream	1	1
TOTAL			**8**	

For each sampling point, have been determined geographical coordinates. Samples were labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

In Table 2.1.4.2.F.3. are presented ***benthic macroinvertebrates samples*** collected from CP04.

Table 2.1.4.2.F.3. Samples of benthic macroinvertebrates

Critical Point Type	Critical Point (PC)		Qualitative and quantitative analysis	
			Left bank	Right bank
Secondary	04A	upstream	1	1
		downstream	1	1
	04B	upstream	1	1
		downstream	1	1
TOTAL			**8**	

For each sampling point, have been determined geographical coordinates. Samples were labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

2.1.4.2.F.is. Sturgeons and barbell migration monitoring

In November sturgeons' migration monitoring has been done with the monitoring systems existent on Danube sector between km 248 and km 348.

2.1.4.2.F.i. Other fish species monitoring

In November were not provided monitoring activities for other fish species.

2.1.4.2.G. Terrestrial flora and fauna monitoring

2.1.4.2.G.1 Terrestrial flora

In this period, no activities for terrestrial flora monitoring have been made.

2.1.4.2.G.2 Terrestrial fauna/Avifauna

In this period, no activities for avifauna monitoring have been made.

2.1.4.2.H. Natura 2000 monitoring sites

In this period, no activities for Natura 2000 sites monitoring have been made.

2.1.4.2.I. Monitoring the building site activities and the compliance with the intervention plan in case of accidental pollution

The monitoring of the construction site was not necessary because the hydrotechnical works have not been started.

2.1.4.3. Monitoring in CP 07 / Fasolele

2.1.4.3.A. Air quality monitoring

Activities conducted during 01/30.11.2017, regarding air quality monitoring, in this secondary critical point are those presented in Table 2.1.4.1.A.1.

No activities regarding air quality monitoring have been made during this period in this secondary critical point.

2.1.4.3.B. Noise level monitoring

Activities conducted during 01/30.11.2017, regarding noise level monitoring, in this secondary critical point are those presented in Table 2.1.4.1.B.1.

No activities regarding noise level monitoring have been made during this period in this

secondary critical point.

2.1.4.3.C. Soil quality monitoring

Activities performed during this reporting period, regarding soil quality monitoring, in this critical point were presented in Table 2.1.4.1.C.1.

No activities regarding soil sampling have been made during this period.

2.1.4.3.D. Hydromorphological monitoring

No activities regarding hydromorphological monitoring during this period.

2.1.4.3.E. Water and sediments quality monitoring

Activities performed during this reporting period, regarding water and sediments quality, in this critical point, are identical with those presented in Table 2.1.1.E.1.

No activities regarding sediments and water sampling have been made during this period.

2.1.4.3.F. Aquatic flora and fauna monitoring

Activities performed during this reporting period, regarding aquatic fauna and flora (except for ichthyofauna) are summarized in Table 2.1.4.3.F.1.

Tabel. 2.1.4.3.F.1. Specific objectivea: Aquatic flora and fauna monitoring

No.	Activities
1.	Organizing the sampling campaign for macrophytes and aquatic macroinvertebrates (Table 1.2)
2.	Conducting the sampling campaign for macrophytes and aquatic macroinvertebrates (sampling bulletins for aquatic flora and fauna - Annex 6.2.1)
3.	Laboratory analysis for aquatic macroinvertebrates collected samples
4.	Processing and preliminary analysis for the obtained results

In Table 2.1.4.3.F.2 is presented the number of samples collected in this campaign from CP07 for ***macrophytes*** anlysis.

Table 2.1.4.3.F.2. Macrophytes samples

Critical Point Type	Critical Point (PC)		Qualitative and quantitative analysis	
			Left bank	Right bank
Secondary	07	upstream	1	1
		downstream	1	1
TOTAL			**4**	

For each sampling point, have been determined geographical coordinates. Samples were

labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

In Table 2.1.4.3.F.3. are presented ***benthic macroinvertebrates*** samples collected from CP07.

Table 2.1.4.3.F.3. Samples of benthic macroinvertebrates

Critical Point Type	Critical Point (PC)		Qualitative and quantitative analysis	
			Left bank	Right bank
Secondary	07	upstream	1	1
		downstream	1	1
TOTAL			**4**	

For each sampling point, have been determined geographical coordinates. Samples were labeled according to the encoding and labeling instructions. For each sample, a bulletin has been completed, see Annex 6.2.1.

2.1.4.3.F.is. Sturgeons and barbell migration monitoring

In November sturgeons' migration monitoring has been done with the monitoring systems existent on Danube sector between km 248 and km 348.

2.1.4.3.F.i. Other fish species monitoring

In November are not provided monitoring activities for other fish species.

2.1.4.3.G. Terrestrial flora and fauna monitoring

2.1.4.3.G.1 Terrestrial flora

During this period, no activities for terrestrial flora monitoring were made.

2.1.4.3.G.2 Terrestrial fauna / Avifauna

During this period no avifauna monitoring activities were carried out.

2.1.4.3.H. Natura 2000 sites monitoring

During this period no monitoring activities in Natura 2000 sites were carried out.

2.1.4.3.I. Work site activities monitoring and intervention compliance plan in case of accidental pollution

The monitoring of the construction site was not necessary because the hydrotechnical works have not been started.

2.2. Stage of 3D numerical modeling

In November 2017, INCDPM specialists have conducted, according to Specifications, bathymetric data aquisition in main critical points CP01 and CP02. Thus, for this activity have been performed:

- bathymetric measurements for morphology and sections profiling;
- bathymetric measurements for velocity and flow rates;
- longitudinal bathymetric measurements for bottom sill geometry determination.

3. MEMBERS OF THE EXPERTS TEAM

3.1. Members of the experts' team

Team's members who carried out activities in the reporting period and the number of days worked by each expert are schematically presented in Table 3.1.

Table 3.1. Members of the experts' team

No.	Experts	Names of experts	Number of working days post-construction
1.	Project manager	Deák György	5
2.	Chemist 1	Ghiță Gina	0
3.	Chemist 2	Borș Adriana	3
4.	Ichthyologist 1	Cristea Victor	7
5.	Ichthyologist 2	Falka Istvan	0
6.	Hydrology	Poteraș George	8
7.	Hydraulic sedimentology	Ungureanu Gh Viorel	10
8.	Phytoplankton and aquatic macrophytes	Marinescu Florica	5
9.	Zooplankton	Adina Popescu	0
10.	Terrestrial invertebrates	Șerban Cecilia	0
11.	Aquatic macroinvertebrates	Florea Luiza	5
12.	Terrestrial flora and vegetation	Frink Jozsef Pal	0
13.	Ornithologist 1	Jozsef Szabo	0
14.	Ecologist 1	Ambrus Laszlo	2
15.	Ecologist 2	Holban Elena	0
16.	Assessor	Tudor Marian	5

3.2. Experts' tasks during the project

The tasks accomplished by experts on each phase/activity/critical point are presented in Experts' Activity Reports (Annex 6.3).

3.3. Planning the activities for the next month on each phase/activity/critical point

The monitoring activities for the period 01–31 December 2017 are synthetically presented in the table 3.4.

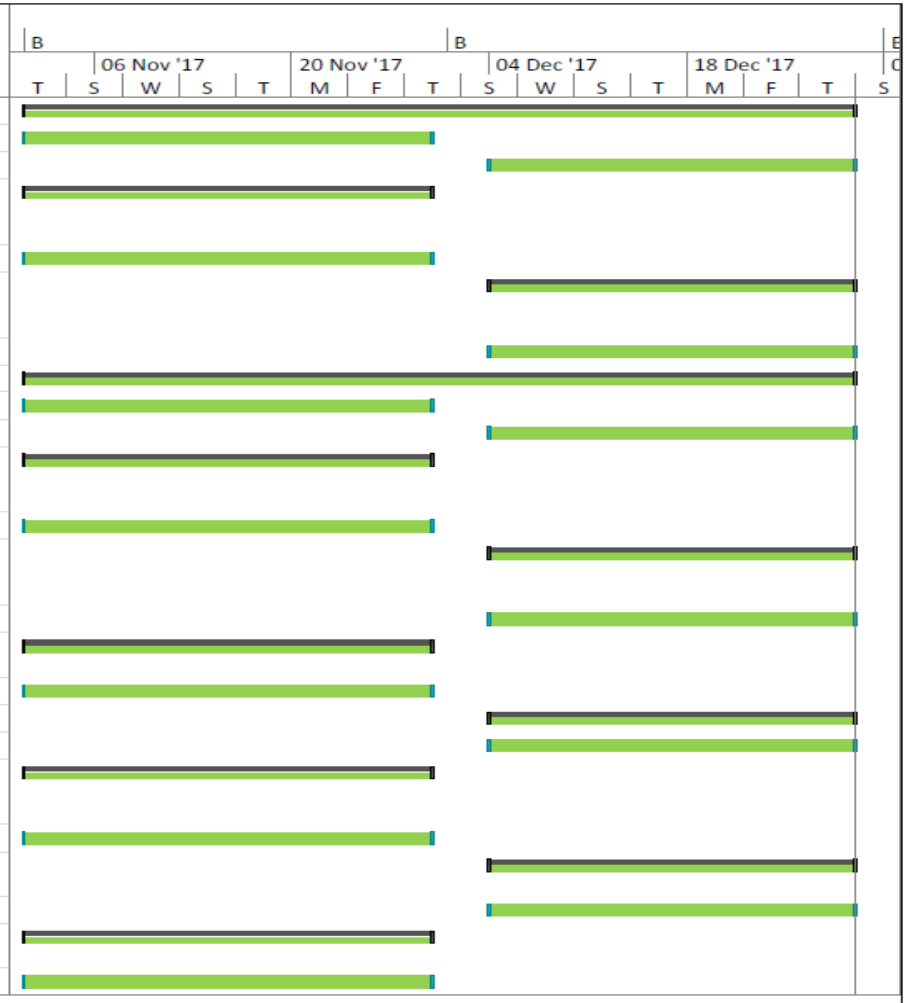
Table 3.4. Activities for the period of 01.12-31.12.2017

No.	ACTIVITIES	Critical points							
		Main critical points			Secondary critical points				
		01	02	10	03A	03B	04A	04B	07
1.	Further campaign of measurements, field observations (where is necessary)	YES	YES	NO	YES	YES	YES	YES	YES
2.	Processing and interpretation of field and laboratory data (where is necessary)	YES	YES	NO	YES	YES	YES	YES	YES
3.	Monthly report preparation	YES	YES	NO	YES	YES	YES	YES	YES

4. TIME SCHEDULE AND BUDGET PROJECT

4.1. Time schedule for project implementation

ID	Task Name	Start	Finish
1	Air monitoring: Contribution to Interim Report 17	Wed 01.11.17	Fri 29.12.17
2	79th Month	Wed 01.11.17	Wed 29.11.17
3	80th Month	Mon 04.12.17	Fri 29.12.17
4	Air monitoring: Contribution to Phase Report on post-construction in main critical point CP 10, regarding air quality monitoring, for August 2014 - July 2017 period	Wed 01.11.17	Wed 29.11.17
5	79th Month	Wed 01.11.17	Wed 29.11.17
6	Air monitoring: Conducting the campaingns for measurements and sampling for air quality, in secondary critical points CP 03A, CP 03B, CP 04A, CP 04B, CP 07.	Mon 04.12.17	Fri 29.12.17
7	80th Month	Mon 04.12.17	Fri 29.12.17
8	Noise monitoring: Contribution to Interim Report RI17	Wed 01.11.17	Fri 29.12.17
9	79th Month	Wed 01.11.17	Wed 29.11.17
10	80th Month	Mon 04.12.17	Fri 29.12.17
11	Noise monitoring: Contribution to Phase Report on post-construction in main critical point CP 10, regarding noise level monitoring, for August 2014 - July 2017 period	Wed 01.11.17	Wed 29.11.17
12	79th Month	Wed 01.11.17	Wed 29.11.17
13	Noise monitoring: Conducting the campaingns for measurements and sampling for noise monitoring, in secondary critical points CP 03A, CP 03B, CP 04A, CP 04B, CP 07.	Mon 04.12.17	Fri 29.12.17
14	80th Month	Mon 04.12.17	Fri 29.12.17
15	Water quality monitoring - Water (physical-chemical analysis) - Data processing for Interim Report 17 (CP 01, CP 02, CP10, CP03, CP04,	Wed 01.11.17	Wed 29.11.17
16	79th Month	Wed 01.11.17	Wed 29.11.17
17	Water quality monitoring CP01, CP02 - Water (physical-chemical analy	Mon 04.12.17	Fri 29.12.17
18	80th Month	Mon 04.12.17	Fri 29.12.17
19	Water quality monitoring - Sediments (heavy metals, organic micropollutants) - Data processing for Interim Report 17 (CP 01, CP 02, CP 10, CP03, CP04, CP07)	Wed 01.11.17	Wed 29.11.17
20	79th Month	Wed 01.11.17	Wed 29.11.17
21	Water quality monitoring CP01, CP02 - Sediments (heavy metals, organic micropollutants)	Mon 04.12.17	Fri 29.12.17
22	80th Month	Mon 04.12.17	Fri 29.12.17
23	Soil monitoring - data processing for Interim Report 17 (CP 01, CP 02, CP 10, CP03, CP04, CP07)	Wed 01.11.17	Wed 29.11.17
24	79th Month	Wed 01.11.17	Wed 29.11.17



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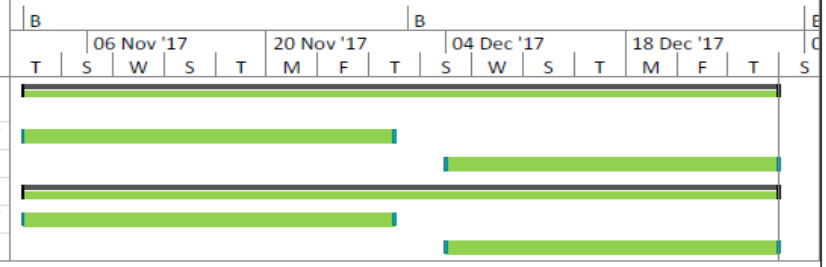
ID	Task Name	Start	Finish
25	Soil monitoring - CP 01, CP 02, CP03, CP04, CP07 - Lumbricides presence, abundance	Mon 04.12.17	Fri 29.12.17
26	80th Month	Mon 04.12.17	Fri 29.12.17
27	Soil monitoring - CP 01, CP 02, CP03, CP04, CP07 - Mineral salts, humic acids, organic matter, physical-chemical analysis	Mon 04.12.17	Fri 29.12.17
28	80th Month	Mon 04.12.17	Fri 29.12.17
29	Aquatic flora monitoring CP 03A/03B/04A/04B/07 - aquatic macrophytes - sampling, composition, abundance, biomass	Wed 01.11.17	Wed 29.11.17
30	79th Month	Wed 01.11.17	Wed 29.11.17
31	Aquatic fauna monitoring CP 01/02/03A/03B/04A/04B/07 - aquatic macroinvertebrates - laboratory analysis, composition, abundance, biomass, saprobic index	Wed 01.11.17	Wed 29.11.17
32	79th Month	Wed 01.11.17	Wed 29.11.17
33	Aquatic flora monitoring CP 03A/03B/04A/04B/07 - phytoplankton - sampling, composition, abundance, biomass	Mon 04.12.17	Fri 29.12.17
34	80th Month	Mon 04.12.17	Fri 29.12.17
35	Hydromorphological monitoring in CP 01/CP 02 - level and turbidity measurements in hydrometric automatic station of INCDPM	Wed 01.11.17	Fri 29.12.17
36	79th Month	Wed 01.11.17	Wed 29.11.17
37	80th Month	Mon 04.12.17	Fri 29.12.17
38	Hydromorphological monitoring in CP 01/CP 02 - Single-beam measurements - sections profiling	Wed 01.11.17	Fri 29.12.17
39	79th Month	Wed 01.11.17	Wed 29.11.17
40	80th Month	Mon 04.12.17	Fri 29.12.17
41	Hydromorphological monitoring in CP 01/CP 02 - Flow rate monitoring (volume, velocity, level)	Wed 01.11.17	Fri 29.12.17
42	79th Month	Wed 01.11.17	Wed 29.11.17
43	80th Month	Mon 04.12.17	Fri 29.12.17
44	Ichtyofauna biodiversity monitoring CP 01/02/03/04/07 - trails and migration periods monitoring for sturgeon specimens with ultrasonic	Wed 01.11.17	Fri 29.12.17
45	79th Month	Wed 01.11.17	Wed 29.11.17
46	80th Month	Mon 04.12.17	Fri 29.12.17
47	Ichtyofauna biodiversity monitoring CP 01 - Data downloading from the monitoring systems for sturgeons migration	Wed 01.11.17	Fri 29.12.17
48	79th Month	Wed 01.11.17	Wed 29.11.17
49	80th Month	Mon 04.12.17	Fri 29.12.17

ID	Task Name	Start	Finish
50	Ichtyofauna biodiversity monitoring CP 01 - Sturgeons active monitoring with VR100	Wed 01.11.17	Fri 29.12.17
51	79th Month	Wed 01.11.17	Wed 29.11.17
52	80th Month	Mon 04.12.17	Fri 29.12.17
53	Monthly reports	Wed 01.11.17	Fri 29.12.17
54	79th Month	Wed 01.11.17	Wed 29.11.17
55	80th Month	Mon 04.12.17	Fri 29.12.17



4.2. Budget and expenses incurred during the reporting period

Justifying calculation for 01 – 30 November 2017

I. EXPERTS EXPENSES				
No.	Experts	No. of working days Post - Construction (36 monts)	Fee (Euro on working day)	Maximum total value of the fees
1	Project leader	5	240	1.200,00 EUR
2	Chemist 1	0	200	0,00 EUR
3	Chemist 2	3	200	600,00 EUR
4	Ichtyologist 1	7	330	2.310,00 EUR
5	Ichtyologist 2	0	200	0,00 EUR
6	Hydrology	8	200	1.600,00 EUR
7	Hydraulic- sedimentlogy	10	200	2.000,00 EUR
8	Aquatic phytoplankton and macropytes	5	130	650,00 EUR
9	Zooplankton	0	130	0,00 EUR
10	Terrestrial invertebrates	0	125	0,00 EUR
11	Aquatic macroinvertebrates	5	125	625,00 EUR
12	Terrestrial flora and fauna	0	125	0,00 EUR
13	Ornithologist 1	0	200	0,00 EUR
14	Ecologist 1	2	140	280,00 EUR
15	Ecologist 2	0	140	0,00 EUR
16	Evaluator	5	330	1.650,00 EUR
SUBTOTAL EXPERTS' FEES				10.915,00 EUR
II EXPENSES with JUSTIFICATION				
1	Ichtyology- telemetry (sturgeons and barbel transmitters, batteries, expensis on stugeons' capturing)			0,00 EUR
2	Abiotic and biotic data for the establishment of the framework			
3	Analysis			0,00 EUR
SUBTOTAL EXPENSES with JUSTIFICATION				0,00 EUR
III. MATHEMTICAL MODELING				
1	Softaware acquisiton+hardware+ necessary licenses			0,00 EUR
2	Acquisition of bathymetric data, necessary for the mathematical modeling			3.049,00 EUR
3	Training of 2 specialists in numerical modeling			0,00 EUR
4	Fee for the numerical modeling expert			0,00 EUR
5	3D numerical model and implementation in 3D monitoring			0,00 EUR
SUBTOTAL NUMERICAL MODELING				3.049,00 EUR
TOTAL without V.A.T.				13.964,00 EUR

4.3. Budget and expenses for the next period

Estimated calculation for 01 – 31 December 2017

I. EXPERTS EXPENSES				
No.	Experts	No. of working days Post - Construction (36 monts)	Fee (Euro on working day)	Maximum total value of the fees
1	Project leader	5	240	1.200,00 EUR
2	Chemist 1	5	200	1.000,00 EUR
3	Chemist 2	5	200	1.000,00 EUR
4	Ichtyologist 1	6	330	1.980,00 EUR
5	Ichtyologist 2	0	200	0,00 EUR
6	Hydrology	8	200	1.600,00 EUR
7	Hydraulic- sedimentlogy	12	200	2.400,00 EUR
8	Aquatic phytoplankton and macropytes	5	130	650,00 EUR
9	Zooplankton	0	130	0,00 EUR
10	Terrestrial invertebrates	0	125	0,00 EUR
11	Aquatic macroinvertebrates	0	125	0,00 EUR
12	Terrestrial flora and fauna	0	125	0,00 EUR
13	Ornithologist 1	0	200	0,00 EUR
14	Ecologist 1	2	140	280,00 EUR
15	Ecologist 2	0	140	0,00 EUR
16	Evaluator	5	330	1.650,00 EUR
SUBTOTAL EXPERTS' FEES				11.760,00 EUR
II EXPENSES with JUSTIFICATION				
1	Ichtyology- telemetry (sturgeons and barbel transmitters, batteries, expensis on stugeons' capturing)			0,00 EUR
2	Abiotic and biotic data for the establishment of the framework			
3	Analysis			0,00 EUR
SUBTOTAL EXPENSES with JUSTIFICATION				0,00 EUR
III. MATHEMTICAL MODELING				
1	Softaware acquisiton+hardware+ necessary licenses			0,00 EUR
2	Acquisition of bathymetric data, necessary for the mathematical modeling			15.000,00 EUR
3	Training of 2 specialists in numerical modeling			0,00 EUR
4	Fee for the numerical modeling expert			0,00 EUR
5	3D numerical model and implementation in 3D monitoring			0,00 EUR
SUBTOTAL NUMERICAL MODELING				15.000,00 EUR
TOTAL without V.A.T.				26.760,00 EUR

5. CONCLUSIONS, RECOMMENDATIONS, WARNINGS

5.1 This Monthly Report reflects monitoring activities from November 2017 related to post-construction period.

5.2 For the specific monitoring objectives within this phase, the Provider considered that the field and laboratory activities, logistics and infrastructure be sized so as to be according to the graphs and stipulations mentioned in the Specifications.

5.3 Taking into consideration the importance of the construction works that take place on Danube on the section between Calarasi and Braila, the Consortium recommends further actions on biodiversity monitoring, al least with the frequency similar to post-construction phase, up to completion of the project, in order to ensure an informational volume, with a high confidence level, to allow if necessary, the development of preventive solutions.

6. ANNEXES

6.1 Relevant correspondence

6.2 Recording bulletins for sampling/measurements

6.2.1: AQUATIC FLORA and FAUNA sampling sheets

6.3 Experts' activity reports

6.4 Images of activities

6.5 Hydromorphology monitoring