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

MONTHLY REPORT N0. 67

01 – 30 November 2016

FINAL VERSION

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CONTENT

1. INTRODUCTION

1.1. Brief presentation of the objectives monitored in the construction phase

I. *This report presents the monitoring objectives for the period 01-30 November 2016.*

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 activities for bathymetric data aquisition.

Besides a proper organization and development of the field campaign, 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			August			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 2016 for post-construction period are presented in Table 1.2.

Table 1.2. Objectives monitored during the period of 01.11-30.11.2016

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	01-04, 10, 11, 14-18, 23-25.09.2016	C67	YES	YES	YES	**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	17.11.2016	C24 - macrophytes	NO	NO	NO	YES	YES	YES	YES	YES
	AQUATIC FAUNA	17-18.11.2016	C25	YES	YES	YES	YES	YES	YES	YES	YES
	F.is. STURGEONS	01, 02, 03, 07, 10, 11, 12, 14, 16, 18, 19, 26, 28, 29.11.2016	C27	YES	YES	YES	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:

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 01/30.11.2016 related to air quality monitoring for each critical point are presented 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 67
2.	Contribution to Interim Report 15

According to post-construction monitoring objectives, in November 2016 for air quality monitoring in this main critical point CP 01 is not provided a sampling campaign. In post-construction period (in this main critical point CP01 have been 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 01/30.11.2016 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 67
2.	Contribution to Interim Report 15

According to post-construction monitoring objectives, in November 2016 for noise level monitoring in this main critical point CP 01 is not provided a measurements campaign. In post-construction period (in this main critical point CP01 have been made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.1.C. Soil quality monitoring

The activities carried out during 01/30.11.2016 related to 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 67
2.	Contribution to Interim Report 15

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

2.1.1.D. Hydromorphological monitoring

The activities from this reporting period are synthetically presented in Table 2.1.1.D.1:

Overall 3 main activities have been carried out:

- Single-beam bathymetric measurements of high resolution;
- Flow and velocity measurements on the monitoring sections;
- Turbidity and level continuous measurements in the 5 automatic hydrometric stations have continued.

Table 2.1.1.D.1 Specific objective: hydromorphological monitoring

No.	Activities
1.	Single-beam bathymetric measurements of high resolution
2.	Flow and velocity measurements on the monitoring sections
3.	Turbidity and level continuous measurements in the 5 automatic hydrometric stations

2.1.1.E. Water and sediments monitoring

The activities carried out during 01/30.11.2016, 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 67
2.	Contribution to Interim Report 15

In this campaign have not been collected water and sediments samples.

2.1.1.F. Aquatic flora and fauna monitoring

The activities carried out during this reporting period, related to 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 fauna and flora 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 samples
4.	Preliminary processing and analysis of the obtained results

From CP 01 were collected ***benthic macroinvertebrates***, as presented in Table 2.1.1.F.2.

Table 2.1.1.F.2. Benthic macroinvertebrates samples

Critical Point Type	Critical Point (CP)	Section	Samples collected for laboratory 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 on Borcea branch were marked with ultrasonic tags and anti-poaching spaghetti tags 13 specimens of beluga and 1 starry sturgeon.

Also, during scientific fishing were recaptured 4 beluga specimens namely: 6S24, 12S11, 12S21 și 12S23. First beluga specimen, code 6S24, was initially tagged on 06.12.2013, on Borcea branch. Sturgeon swam downriver beyond km 182 on Danube during the same month and did not returned on the monitored sector in 2014 spring for breeding. After about 3 years, on 03.11.2016, specimen was captured and released for the second time on Borcea branch. It is remarkable that the return occurred also during the autumn migration, and behavior will be observed to see if will return on the monitored sector during the spring season next year.

During the month were downloaded all monitoring systems from this Critical Point and were performed maintenance activities.

2.1.1.F.i. Other fish species monitoring

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

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

In November 2016 have not been made monitoring activities for avifauna.

2.1.1.H. Natura 2000 sites monitoring

In November 2016 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

According to post-construction monitoring objectives are not necessary monitoring activities for the construction site.

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

2.1.2.A. Air quality monitoring

The activities carried out during 01/30.11.2016 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 2016 for air quality monitoring in this main critical point CP02 is not provided a sampling campaign. In post-construction period (in this main critical point CP02 have been made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.2.B. Noise monitoring

The activities carried out in reporting period, 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 2016 for noise level monitoring in this main critical point CP 02 is not provided a measurements campaign. In post-construction period (in this main critical point CP02 have been made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.2.C. Soil quality monitoring

The activities carried out in reporting period, regarding soil quality monitoring, for this Critical Point are those presented in Table 2.1.1.C.1.

During this period have not been made soil sampling.

2.1.2.D. Hydromorphological monitoring

The activities from this reporting period are summarized in table 2.1.2.D.1.

Overall 3 main activities have been carried out:

- Single-beam bathymetric measurements of high resolution;
- Flow and velocities measurements on the monitoring sections;

- Turbidity and level continuous measurements in the 2 hydrometric automatic stations.

Table 2.1.2.D.1 Specific objective: hydromorphological monitoring

No.	Activities
1.	Single-beam bathymetric measurements of high resolution
2.	Flow and velocities measurements on the monitoring sections
3.	Turbidity and level continuous measurements in the 2 automatic hydrometric stations

In November 2016, were conducted - mainly – ADCP measurements (flow rates/velocities) provided in Specifications. Results will be presented in the Interim Report for this month.

2.1.2.E. Water and sediments monitoring

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

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

2.1.2.F. Aquatic flora and fauna monitoring

Activities performed 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)
3.	Laboratory analysis for aquatic macroinvertebrates samples
4.	Preliminary processing and analysis of the obtained results

From CP 02 have been collected ***benthic macroinvertebrates***, as presented in Table 2.1.2.F.2.

Table 2.1.2.F.2. Benthic macroinvertebrates samples

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 CP02, monitoring of sturgeons migration was made with the monitoring systems placed on Old Danube.

2.1.2.F.i. Other fish species monitoring

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

2.1.2.G. Terrestrial flora and fauna monitoring

2.1.2.G.1 Terrestrial flora

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

2.1.2.G.2 Terrestrial fauna/ Avifauna

In November 2016 have not been made monitoring activities for avifauna.

2.1.2.H. Natura 2000 sites monitoring

In November 2016 have not been made monitoring activities for Natura 2000 sites.

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 01/30.11.2016, regarding air quality monitoring, in this critical point are those presented in Table 2.1.1.A.1.

For main critical point CP10, in November 2016 have not been made monitoring activities for air quality, as a post-construction period (in this main critical point CP10 have been made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.3.B. Noise monitoring

The activities carried out during reporting period, related to noise level monitoring, related to this critical point are those presented in Table 2.1.1.B.1.

For main critical point CP10, in November 2016 have not been made monitoring activities for noise level, as a post-construction period (in this main critical point CP10 have been made the reception of the construction work) frequency is biannual (as Table 1.1).

2.1.3.C. Soil quality monitoring

The activities carried out during reporting period, related to soil quality monitoring, in this Critical Point are those presented in Table 2.1.1.C.1.

In this period soil samples have not been collected.

2.1.3.D. Hydrophological monitoring

Activities performed during this reporting period, are summarized in Table 2.1.3.D.1.

Overall, have been performed 3 main activities:

- Single-beam bathymetric measurements for sections profiling;
- Flow and velocity measurements on the monitoring sections;
- Have continued activities of continuous measurements for turbidity and level in the 3 hydrometrical automatic stations.

Table 2.1.3.D.1. Specific objective: hydromorphological monitoring

No.	Activities
1.	Single-beam bathymetric measurements for sections profiling
2.	Flow and velocity measurements on the monitoring sections
3.	Continuous measurements for turbidity and level in the 3 hydrometrical automatic stations

2.1.3.E. Water and sediments quality monitoring

The activities carried out in reporting period related to water and sediments quality in this critical point are those presented in Table 2.1.1.E.1.

In this campaign have not been collected water and sediments samples.

2.1.3.F. Aquatic flora and fauna monitoring

The activities carried out during reporting period, related to aquatic fauna and flora (except for ichtyofauna), are summarized in Table 2.1.3.F.1.

Table 2.1.3.F.1. Specific Objective: 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 samples
4.	Preliminary processing and analysis of the obtained results

From CP 10 have been collected ***benthic macroinvertebrates***, as presented in Table 2.1.3.F.2.

Table 2.1.3.F.2. Benthic macroinvertebrates samples

Critical Point Type	Critical Point (CP)	Section	Qualitative and quantitative analysis	
			Left bank	Right bank
Main	10	1	1	1
		2	1	1
		3	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.

2.1.3.F.is. Sturgeons and barbell migration monitoring

Monitoring of sturgeons migration was made with monitoring systems on Caleia, Cravia branches and navigable Danube.

2.1.3.F.i. Other fish species monitoring

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

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 November 2016 have not been made monitoring activities for avifauna.

2.1.3.H. Natura 2000 sites monitoring

In November 2016 have not been made monitoring activities for Natura 2000 sites.

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 the CP 03 (upstream and downstream Seica)

2.1.4.1.A. Air quality monitoring

The activities carried out during 01/30.11.2016 related to air quality monitoring for each secondary critical points are presented in Table 2.1.4.1.A.1.

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

No.	Activities
1.	Preparing the sampling campaign for air quality, in field at secondary critical points CP 03A, CP 03B, CP 04A, CP 04B, CP 07

During this period have not been made air monitoring in this critical point.

2.1.4.1.B. Noise level monitoring

The activities carried out during 01/30.11.2016, regarding 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 Objective - noise level monitoring

No.	Activities
1.	Preparing the measurement campaign for noise level in field, on secondary critical points CP 03A, CP 03B, CP 04A, CP 04B, CP 07

During this period have not been made noise monitoring in this Critical Point.

2.1.4.1.C. Soil quality monitoring

The activities carried out during reporting period, regarding soil quality monitoring, in this critical point are those presented in Table 2.1.1.C.1.

During this period have not been made 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

The activities carried out in this reporting period, regarding water and sediments quality in this critical point, are those presented in Table 2.1.1.E.1.

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

2.1.4.1.F. Aquatic flora and fauna monitoring

Activities performed during this reporting period, regarding **aquatic flora and fauna** (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 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 samples
4.	Preliminary processing and analysis of 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 (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.

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

Table 2.1.4.1.F.3. Benthic macroinvertebrates samples

Critical Point Type	Critical Point (CP)		Samples collected for laboratory 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

Monitoring of sturgeons migration have been conducted on this sector by the monitoring systems placed between km 348 and km 240, on Old Danube.

2.1.4.1.F.i. Other fish species monitoring

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

2.1.4.1.G. Terrestrial flora and fauna monitoring

2.1.4.1.G.1 Terrestrial flora

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

2.1.4.1.G.2 Terrestrial fauna / Avifauna

In November 2016 have not been made monitoring activities for avifauna.

2.1.4.1.H. Natura 2000 sites monitoring

In November 2016 have not been made monitoring activities for Natura 2000 sites.

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

Because the hydrotechnical works have not started, was not necessary the monitoring of construction site activity.

2.1.4.2. Critical point 04 monitoring/Ceacâru/Fermecatu

2.1.4.2.A. Air quality monitoring

The activities carried out during 01/30.11.2016 regarding air quality monitoring, for each secondary critical points are presented in Table 2.1.4.1.A.1.

During this period have not been made air monitoring in this critical point.

2.1.4.2.B. Noise level monitoring

The activities carried out during 01/30.11.2016, 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 made noise monitoring in this critical point.

2.1.4.2.C. Soil quality monitoring

The activities carried out during the reporting period regarding soil quality monitoring in this critical point are summarized in Table 2.1.1.C.1.

During this period have not been made 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

The activities carried out during this reporting period, regarding regarding water and sediments quality, in this critical point are those presented in Table 2.1.1.E.1.

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

2.1.4.2.F. Aquatic flora and fauna monitoring

The activities carried out during this reporting period, regarding **aquatic flora and fauna** (except for ichtyofauna) 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 aquatic macrophytes and macroinvertebrates (Table 1.2)
2.	Conducting the sampling campaign for aquatic macrophytes and macroinvertebrates (sampling bulletins for aquatic flora and fauna - Annex 6.2.1)
3.	Laboratory analysis for aquatic macroinvertebrates samples
4.	Preliminary processing and analysis of 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 (CP)		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 CP 04.

Table 2.1.4.2.F.3. Benthic macroinvertebrates samples

Critical Point Type	Critical Point (CP)		Samples collected for laboratory 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

Monitoring of sturgeons migration was performed on this sector by the monitoring systems placed between km 348 and km 240 on Old Danube.

2.1.4.2.F.i. Other fish species monitoring

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

2.1.4.2.G. Terrestrial flora and fauna monitoring

2.1.4.2.G.1 Terrestrial flora

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

2.1.4.2.G.2 Terrestrial fauna/Avifauna

In November 2016 have not been made monitoring activities for avifauna.

2.1.4.2.H. Natura 2000 monitoring sites

In November 2016 have not been made monitoring activities for Natura 2000 sites.

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. Critical Point CP 07 / Fasolele monitoring

2.1.4.3.A. Air quality monitoring

Activities performed during 01/30.11.2016, regarding air quality monitoring, for this secondary critical point are those presented in Table 2.1.4.1.A.1.

During this period have not been made air monitoring in this critical point.

2.1.4.3.B. Noise level monitoring

Activities performed during 01/30.11.2016, regarding noise level monitoring, in this secondary critical point are those presented in Table 2.1.4.1.B.1.
During this period have not been made noise monitoring in this critical point.

2.1.4.3.C. Soil quality monitoring

Activities performed during reporting period, regarding soil quality monitoring, in this critical point, were summarized in Table 2.1.1.C.1.

During this period have not been made soil sampling.

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

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

2.1.4.3.F. Aquatic flora and fauna monitoring

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

Table 2.1.4.3.F.1. Specific objective: aquatic flora and fauna monitoring

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

In Table 2.1.4.3.F.2. is presented the number of samples collected in this campaign from CP 07 for ***macrophytes*** analysis.

Table 2.1.4.3.F.2. Macrophytes samples

Critical Point Type	Critical Point (CP)		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 ***bethic macroinvertebrates*** collected from CP 07.

Table 2.1.4.3.F.3. Benthic macroinvertebrates samples

Critical Point Type	Critical Point (CP)		Samples collected for laboratory 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

Sturgeons migration monitoring were performed on this sector by the monitoring systems placed between km 348 and km 240 on Old Danube.

2.1.4.3.F.i. Other fish species monitoring

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

2.1.4.3.G. Terrestrial flora and fauna monitoring

2.1.4.3.G.1 Terrestrial flora

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

2.1.4.3.G.2 Terrestrial fauna / Avifauna

In November 2016 have not been made monitoring activities for avifauna.

2.1.4.3.H. Natura 2000 sites monitoring

In November 2016 have not been made monitoring activities for Natura 2000 sites.

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

Because the hydrotechnical works not started, was not necessary the construction site monitoring.

2.2. Stage of 3D numerical modeling

In November, INCDPM specialists have achieve, according to Specifications, bathymetric data acquisition in main critical points CP01, CP02 and CP10 areas. Thus, for this activity have been performed:

- bathymetric measurements for morphology and for 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 team experts

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

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 2016 are synthetically presented in the table 3.4.

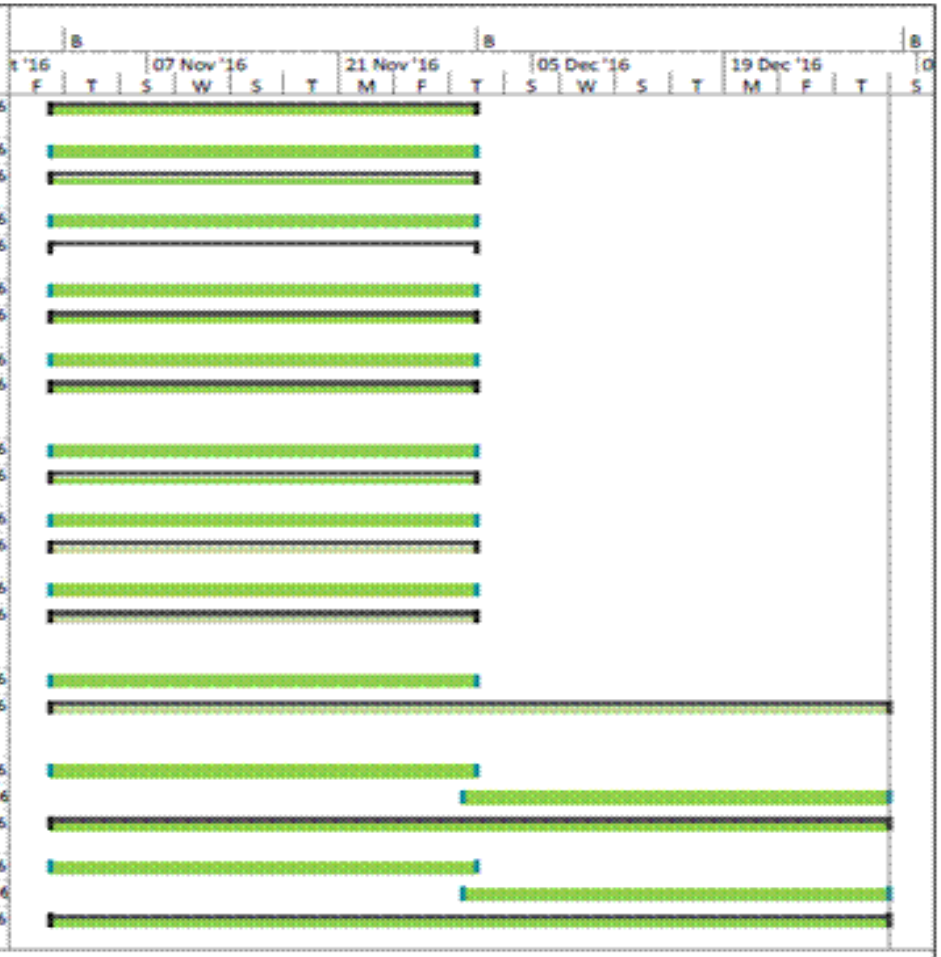
Table 3.4. Activities for the period of 01.12-31.12.2016

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	YES	YES	YES	YES	YES	YES
2.	Processing and interpretation of field and laboratory data (where is necessary)	YES	YES	YES	YES	YES	YES	YES	YES
3.	Monthly report preparation	YES	YES	YES	YES	YES	YES	YES	YES

4. TIME SCHEDULE AND BUDGET PROJECT

4.1. Time schedule for project implementation

ID	Task Name	Start
1	Hydromorphological monitoring in CP 01/CP 02/CP10 - Single-beam measurements - sections profiling	Mon 31.10.16
2	67th Month	Mon 31.10.16
3	Hydromorphological monitoring in CP 01/CP 02/CP10 - Flow rate monitoring (volume, velocity, level)	Mon 31.10.16
4	67th Month	Mon 31.10.16
5	Hydromorphological monitoring in CP 01/CP 02/CP 10 - level and turbidity measurements in automatic hydrometric stations of INCDPM	Mon 31.10.16
6	67th Month	Mon 31.10.16
7	Soil monitoring - data processing for Interim Report 15 (CP01, CP02, CP10, CP03, CP04, CP07)	Mon 31.10.16
8	67th Month	Mon 31.10.16
9	Water quality monitoring - Sediments (heavy metals, organic micropollutants) - data processing for Interim Report 15 (CP01, CP02, CP10, CP03, CP04, CP07)	Mon 31.10.16
10	67th Month	Mon 31.10.16
11	Water quality monitoring - Water (physical-chemical analysis) - data processing for Interim Report 15 (CP01, CP02, CP10, CP03, CP04, CP07)	Mon 31.10.16
12	67th Month	Mon 31.10.16
13	Aquatic flora monitoring - CP 03A/03B/04A/04B/07 - Macrophytes - sampling, composition, abundance, biomass	Mon 31.10.16
14	67th Month	Mon 31.10.16
15	Aquatic fauna monitoring - CP 01/02/10/03A/03B/04A/04B/07 - Aquatic macroinvertebrates - sampling, composition, abundance, biomass, saprobic index	Mon 31.10.16
16	67th Month	Mon 31.10.16
17	Ichthyofauna Biodiversity Monitoring in CP 01/02/10/03/04/07 - Monitoring for the migration trails and seasons for ultrasonic tagged sturgeons specimens	Mon 31.10.16
18	67th Month	Mon 31.10.16
19	68th Month	Wed 30.11.16
20	Ichthyofauna Biodiversity Monitoring in CP 01/02 - data downloading from the monitoring systems and maintenance activities	Mon 31.10.16
21	67th Month	Mon 31.10.16
22	68th Month	Wed 30.11.16
23	Ichthyofauna Biodiversity Monitoring in CP01 - fishing and tagging for sturgeon species specimens	Mon 31.10.16



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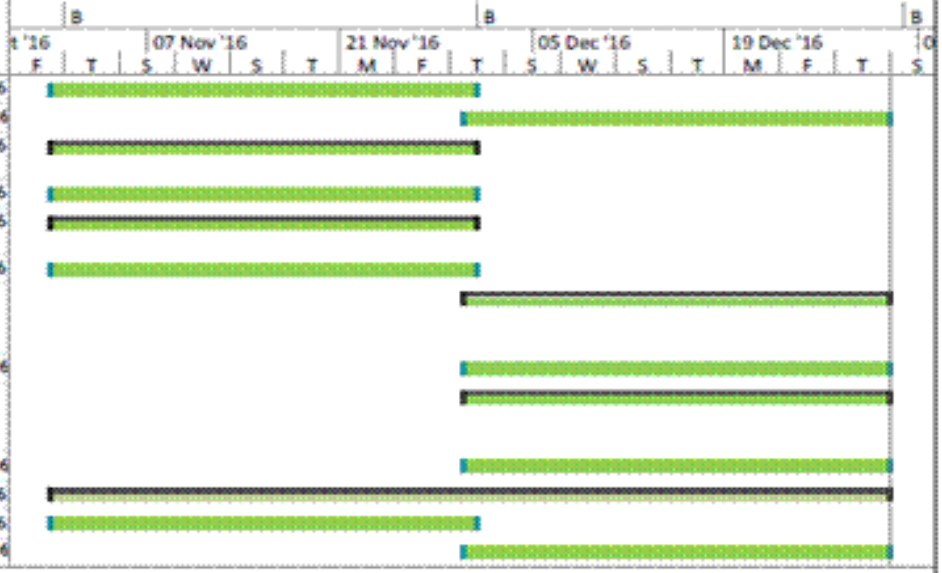
ID	Task Name	Start
24	67th Month	Mon 31.10.16
25	68th Month	Wed 30.11.16
26	Noise monitoring: Processing the data obtained from noise monitoring in critical points for Interim Report RI15 drafting	Mon 31.10.16
27	67th Month	Mon 31.10.16
28	Air monitoring: Data processing, related to air quality, in critical points for Interim Report RI15 drafting	Mon 31.10.16
29	67th Month	Mon 31.10.16
30	Noise monitoring (zero and intense traffic): Conducting the campaign on noise monitoring in secondary critical points CP 03A, CP 03B, CP 04A, CP 04B and CP 07. Contribution to Interim Report RI15	Wed 30.11.16
31	68th Month	Wed 30.11.16
32	Air monitoring: Conducting the sampling and measurements campaign for air quality, in secondary critical points CP 03A, CP 03B, CP 04A, CP 04B and CP 07. Contribution to Interim Report RI15	Wed 30.11.16
33	68th Month	Wed 30.11.16
34	Monthly Reports	Mon 31.10.16
35	67th Month	Mon 31.10.16
36	68th Month	Wed 30.11.16



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4.2. Budget and expenses incurred during the reporting period

Justifying calculation for 01 – 30 November 2016

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	3	200	600,00 EUR
3	Chemist 2	3	200	600,00 EUR
4	Ichtyologist 1	14	330	4.620,00 EUR
5	Ichtyologist 2	0	200	0,00 EUR
6	Hydrology	8	200	1.600,00 EUR
7	Hydraulic- sedimentlogy	16	200	3.200,00 EUR
8	Aquatic phytoplankton and macropytes	9	130	1.170,00 EUR
9	Zooplankton	0	130	0,00 EUR
10	Terrestrial invertebrates	0	125	0,00 EUR
11	Aquatic macroinvertebrates	11	125	1.375,00 EUR
12	Terrestrial flora and fauna	0	125	0,00 EUR
13	Ornithologist 1	0	200	0,00 EUR
14	Ecologist 1	3	140	420,00 EUR
15	Ecologist 2	0	140	0,00 EUR
16	Evaluator	6	330	1.980,00 EUR
SUBTOTAL EXPERTS' FEES				16.765,00 EUR
II EXPENSES with JUSTIFICATION				
1	Ichtyology- telemetry (sturgeons and barbel transmitters, batteries, expensis on stugeons' capturing)			24.325,28 EUR
2	Abiotic and biotic data for the establishment of the framework			
3	Analysis			0,00 EUR
SUBTOTAL EXPENSES with JUSTIFICATION				24.325,28 EUR
III. MATHEMTICAL MODELING				
1	Softaware acquisiton+hardware+ necessary licenses			0,00 EUR
2	Acquisition of bathymetric data, necessary for the mathematical modeling			53.382,20 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				53.382,20 EUR
TOTAL without V.A.T.				94.472,48 EUR

4.3. Budget and expenses for the next period

Estimated calculation for 01 – 31 December 2016

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	10	330	3.300,00 EUR
5	Ichtyologist 2	0	200	0,00 EUR
6	Hydrology	8	200	1.600,00 EUR
7	Hydraulic- sedimentlogy	15	200	3.000,00 EUR
8	Aquatic phytoplankton and macropytes	0	130	0,00 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	3	140	420,00 EUR
15	Ecologist 2	0	140	0,00 EUR
16	Evaluator	6	330	1.980,00 EUR
SUBTOTAL EXPERTS' FEES				13.500,00 EUR
II EXPENSES with JUSTIFICATION				
1	Ichtyology- telemetry (sturgeons and barbel transmitters, batteries, expensis on stugeons' capturing)			24.500,00 EUR
2	Abiotic and biotic data for the establishment of the framework			
3	Analysis			0,00 EUR
SUBTOTAL EXPENSES with JUSTIFICATION				24.500,00 EUR
III. MATHEMTICAL MODELING				
1	Softaware acquisiton+hardware+ necessary licenses			0,00 EUR
2	Acquisition of bathymetric data, necessary for the mathematical modeling			40.000,00 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				40.000,00 EUR
TOTAL without V.A.T.				78.000,00 EUR

5. CONCLUSIONS, RECOMMENDATIONS, WARNINGS

5.1 This Monthly Report reflects monitoring activities from November 2016 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, with the frequency related with the post-construction stage, up to end of the project, in order to ensure an informational volume, with a high confidence level, to allow if necessary, the development of preventive solutions.

5.4 In November 2016, hydromorphological monitoring activity mainly based on ADCP measurements (flow rates and velocities) in main critical points area: CP01, CP02 and CP10, as well as from single-beam measurements for sections profiling in the 3 main critical points, in conditions with medium flow rates in first part of the month and high flow in the second one, compared with historical data for this time of year.

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

6.6 Ichtyofauna monitoring

6.6.1: Sturgeons capture centralizer

6.6.2: Capture sheets