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Project: 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 No 80: 1 - 31 December 2017

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 NO. 80

01 - 31 December 2017



FINAL VERSION



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Comisia de Cooperare
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Project: 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 No 80: 1 - 31 December 2017

CARRIED OUT BY:

1. PhD eng. DEÁK György - CS I - project leader
2. Univ. Prof. PhD eng. Iulian Gabriel BÎRSAN
3. PhD eng. Mihai LESNIC - CS I
4. PhD eng. Dan COCIORVA - CS II
5. PhD eng. George POTERAȘ - CS I
6. PhD eng. Ioan BOSOANCĂ
7. biol. SZABO Jozsef
8. PhD eng. Gina GHIȚĂ - CS II
9. Phd chem. Adriana BORȘ - CS II
10. PhD eng. Victor CRISTEA
11. PhD biol. Florica MARINESCU - CS III
12. Cecilia ȘERBAN
13. Luiza FLOREA
14. FRINK Jozsef Pal
15. Marian TUDOR
16. PhD eng. Mihaela ILIE - CS III
17. univ. prof. dipl. eng. Helmut HABERSACK
18. PhD Falka Istvan
19. ecologist AMBRUS Laszlo
20. prof. PhD eng. Gh Viorel UNGUREANU
21. ecologist Elena HOLBAN - CS III
22. Magdalena CHIRIAC - CS I
23. eng. Marius RAISCHI - CS III
24. PhD eng. Lucian LASLO - CS III
25. PhD chem. Petra IONESCU - CS III
26. ecologist MIHOLCSA Tamas
27. PhD eng. Alin Marius BÂDILIȚĂ - CSIII
28. eng. Bianca PETCULESCU - CS III
29. PhD eng. Ana Maria ANGHEL - CSIII
30. chem. Alexandru IVANOV - CSIII
31. Mădălina Georgiana BOBOC - CS



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32. eng. Georgeta Tudor, CS
33. eng. chim. Ileana MÎȚIU - CS I
34. eng. Monica Niculina RADU - CS I
35. ecologist Iuliana MĂRCUȘ - CS III
36. PhD eng. Carmen TOCIU - CS III
37. chem. Carmen MUNTEANU - CS III
38. ecologist Mariana MINCU - CS III
39. PhD eng. Mihaela MÎȚIU - CSIII
40. eng. Marius OLTEANU, CSIII
41. geograph Bogdan URITESCU - CS
42. eng. Constantin CÎRSTINOIU - CS
43. geograph Nicu CIOBOTARU - CS
44. ecologist Tiberius DĂNĂLACHE, CS
45. eng. Ștefan ZAMFIR, CS
46. eng. Gabriel BADEA, CS
47. eng. Alexandru CRISTEA, CS
48. eng. Simona RAISCHI - CS
49. biol. Ioana SAVIN - ACS
50. ecologist Ecaterina MARCU - CS
51. biologist Cristina CIMPOERU - CS
52. ecologist Cornelia LUNGU - ACS
53. eng. Mădălin SILION, CS
54. techn. Sergiu SĂNDICĂ
55. techn. Corneliu VASILE
56. techn. Elena BARBU
57. techn. Paula CATANĂ
58. techn. Georgeta MĂNESCU



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ANNEXES

6.1 Relevant correspondence

6.2 Recording bulletins for sampling/measurements

6.2.1: AIR sampling sheets

6.2.2: NOISE sampling sheets

6.2.3: SOIL sampling sheets

6.2.4: WATER sampling sheets

6.2.5: SEDIMENTS sampling sheets

6.2.6: AQUATIC FLORA and FAUNA sampling sheets

6.3 Experts' activity reports

6.4 Images of activities

6.5 Hydromorphology monitoring



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1. INTRODUCTION

1.1. Brief presentation of monitored objectives

I. *This report presents the monitoring objectives for the period 01-31 December 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 acquisition.

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



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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



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1.2. Overview

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

Table 1.2. Objectives monitored during the period of 01.12-31.12.2017

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	15,18.12.2017	C69	NO	NO	NO	YES	YES	YES	YES	YES
B.	NOISE	15,18.12.2017	C72	NO	NO	NO	YES	YES	YES	YES	YES
C.	SOIL	06.12.2017	C28	YES	YES	NO	YES	YES	YES	YES	YES
D.	HYDROMORPHOLOGY	04-08, 11-15.12.2017	C77	YES	YES	NO	NO	NO	NO	NO	NO
E.	WATER QUALITY	06.12.2017	C66	YES	YES	NO	NO	NO	NO	NO	NO
	SEDIMENTS	06.12.2017	C66	YES	YES	NO	NO	NO	NO	NO	NO
F.	AQUATIC FLORA	06.12.2017	C29 - phytoplankton	NO	NO	NO	YES	YES	YES	YES	YES
	AQUATIC FAUNA	-	-	NO	NO	NO	NO	NO	NO	NO	NO
	F.is. STURGEONS	13-15.12.2017	C14	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



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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	<ul style="list-style-type: none"> - LECKEL dust sampler - Auto-laboratory - Desaga pump - GPS - Autolaboratory for air monitoring 	<ul style="list-style-type: none"> - Analytical balance KERN 770-14 - Atomic absorption spectrometer with graphite furnace AAS - UNICAM 939
B.	NOISE	<ul style="list-style-type: none"> - Sound Level Meter and Microphone, Brüel & Kjær Denmark - GPS 	
C.	SOIL	<ul style="list-style-type: none"> - Burkle sampler - GPS 	<ul style="list-style-type: none"> - 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 Nexlon 350x equipped with hydrides generator system and autosampler system with autodiluter
D.	HYDROMORPHOLOGY	<ul style="list-style-type: none"> - Portable Turbidimeter type VELP SCIENTIFICA - 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 - Kongsberg GeoSwath Plus Compact, 250 kHz - Acoustic Doppler Current Profiler (ADCP) - Teledyne RD Instruments RiverRay - ROV (Remote Operate Vehicle) - ROVBUILDER Mini 600 - GPS 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Ruttner sampler - GPS 	<ul style="list-style-type: none"> - Spectrometer with atomic absorbtion VARIAN - Spectrometer CARY BIO 300 U.V.-VIS - Spectrofotometer with atomic absorbtion - with flame, graphite 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	<ul style="list-style-type: none"> - Petersen sampler - GPS 	<ul style="list-style-type: none"> - Cryo - drying system ALPHA 2-4 LSCplus - Gas chromatograph 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



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Objectives monitored		Sampling equipment	Laboratory equipments / ongoing activities
F.	AQUATIC FLORA	<ul style="list-style-type: none"> - planktonic nets - Patalas sampler - dredges 20cmx50 cm - Square wooden frame, with surface of 1m² - GPS 	<ul style="list-style-type: none"> - reverse microscope ZEISS - OPTIKA B-600T microscope - KRUSS microscope - Canon A570 IS camera for microscope
	AQUATIC FAUNA	<ul style="list-style-type: none"> - zooplanktonic nets - zoobenthic nets - Petersen sampler - benthos grabbing dredges - benthos sampling probe - GPS 	<ul style="list-style-type: none"> - Stereomicroscope Olympus - Binocular Zeiss - Microscope ZEISS - Canon A570 IS camera for microscope - magnifying glass
	F.is. STURGEONS AND BARBELL	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 01/31.12.2017 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 80
2.	Contribution to Interim Report 17

According to post-construction monitoring objectives, in December 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 01/31.12.2017 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 80
2.	Contribution to Interim Report 17

According to post-construction monitoring objectives, in December 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- 31 December 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.	Organizing campaign 28 for soil sampling (Tabel 1.3)
2.	Campaign 28 for soil sampling (soil sampling bulletins - Annex 6.2.3)
3.	Field observations - presence/absence of lumbricides
4.	Performing laboratory analysis (preliminary analysis) for soil physical-chemical-mechanical characterization

Number of soil samples collected from CP01 is presented in Table 2.1.1.C.2.

Table 2.1.1.C.2. Soil samples

Type of critical point	Critical Point	Samples collected for laboratory analysis	
		depth 5 cm	depth 30 cm
Main	CP 01	3	3

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 6.2.3.

2.1.1.D. Hydromorphological monitoring

The activities carried out during this reporting period are summarized in Table 2.1.1.D.1.

Overall, 3 main activities were carried out, namely:

- Single-beam bathymetric measurements of high resolution;
- Flow and velocity measurements on the monitoring sections;
- Have continued measurements activities for turbidity and level in the 4 hydrometric automatic stations.

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.	Measurements activities for turbidity and level in the 4 hydrometric automatic stations.

2.1.1.E. Water and sediments monitoring

The activities carried out during 01/31.12.2017, 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.	Organizing campaign 66 for water and sediment sampling (Tabel 1.3)
2.	Water sampling campaign on cross-sections, at various depths (water sampling bulletins - Annex 6.2.4)
3.	Sediments sampling campaign (sediments sampling bulletins - Annex 6.2.5)
4.	Physical-chemical analysis in the field, for water sediments
5.	Physical-chemical laboratory analysis for water and sediments samples



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In this sampling campaign were collected water and sediment samples as presented in Table 2.1.1.E.2.

Table 2.1.1.E.2. Water and sediment samples

Critical Point Type	Critical Point (CP)	Water samples	Sediment samples
Main	01	20	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 Annexes 6.2.4 and 6.2.5.

2.1.1.F. Aquatic flora and fauna monitoring

In reporting period no samplig have been made.

2.1.1.F.is. Sturgeons and barbell migration monitoring

In December have continued sturgeons monitoring with fixed systems and mobile device VR100, without further tagging new specimens, the permit for scientific fishing being suspended by the National Agency for Fisheries and Aquaculture. At the same time, data for processing and interpretation was downloaded.

2.1.1.F.i. Other fish species monitoring

In December 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.



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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, Epurașu Island area (Lebăda)

2.1.2.A. Air quality monitoring

The activities carried out during 01/31.12.2017 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 December 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 01/31.12.2017, 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 December 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 01-31 December 2017, regarding soil quality monitoring, for this critical point are those presented in Table 2.1.1.C.1.

Number of soil samples collected from CP02 is presented in Table 2.1.2.C.1.

Table 2.1.2.C.1. Soil samples

Type of Critical Point	Critical Point	Samples collected for laboratory analysis	
		depth 5 cm	depth 30 cm
Main	PC 02	3	3

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 6.2.3.

2.1.2.D. Hydromorphological monitoring

The activities carried out during this report period are summarized in Table 2.1.2.D.1.

Overall, 3 main activities were made, namely:

- Single-beam bathymetric measurements of high resolution;
- Flow and velocity measurements on the monitoring sections;
- Further continuous measurements for turbidity and level in the 3 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 velocity measurements on the monitoring sections
3.	Continuous measurements for turbidity and level in the 3 hydrometric automatic stations.

In December were made, mainly, ADCP measurements (flow/velocities) as 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 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 campaign were collected water and sediments samples as presented in Table 2.1.2.E.1.

Table 2.1.2.E.1. Water and sediment samples

Critical Point Type	Critical Point (CP)	Water samples	Sediment samples
Main	02	15	6

For each sample, a bulletin has been completed, see Annex 6.2.5.

2.1.2.F. Aquatic flora and fauna monitoring

During this period have not been made sampling activities.

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.



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2.1.2.F.i. Other fish species monitoring

In December 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)

At this critical point no longer been carried out monitoring activities, as post-construction monitoring period was completed in August 2017.

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 01/31.12.2017, 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.	Organizing the measurements campaign (Table 1.2)
2.	Conducting the campaign for air sampling (air sampling bulletins - Annex 6.2.1)
3.	Contribution to Monthly Report 80
4.	Contribution to Interim Report 17

In Table 2.1.4.1.A.2. is presented the number of air samples collected/“in situ”

measurements made during 01-31 December 2017.

Table 2.1.4.A.2. Air samples repartition

Critical Point Type	Critical Point (CP)	Samples collected for laboratory analysis	Number of "in situ" measurements
Secondary	03 A and 03 B	4	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.

2.1.4.1.B. Noise level monitoring

The activities carried out during 01/31.12.2017, 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 objective: noise monitoring

No.	Activities
1.	Campaign for noise level measurements in conditions with zero naval traffic / intense naval traffic (noise level measurements bulletins - Anexa 6.2.2)
2.	Primary processing for the data obtained from measurements
4.	Contribution to Monthly Report 80
5.	Contribution to Interim Report 17

In this monitoring campaign for noise level, during 01/31.12.2017, measurements were made as presented in Table 2.1.4.1.B.2, below:

Table 2.1.4.1.B.2. Noise level monitoring

Critical Point Type	Critical Point (CP)	No. of measurements	
		zero naval traffic	intense naval traffic
Secondary	03 A	2	0
	03 B	2	0

For each sampling point has been established geographic coordinates, then trans-calculated in STEREO'70 projection system. The measurements have been coded according to the encoding instructions. Also, for each measurement a report for noise level has been completed, see Annex 6.2.2.

2.1.4.1.C. Soil quality monitoring

The activities carried out during 01/31.12.2017, related to soil quality monitoring in this critical points are those presented in Table Table 2.1.1.C.1.

Number of soil samples collected from CP03 (A and B) is presented in Table 2.1.4.1.C.1.

Table 2.1.4.1.C.1. Soil samples

Critical Point Type	Critical Point	Samples collected for laboratory analysis	
		depth 5 cm	depth 30 cm
Secondary	CP 03A	2	2
Secondary	CP 03B	2	2

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 6.2.3.

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

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 ichthyofauna), 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 phytoplankton (Table 1.2)
2.	Conducting the sampling campaign for phytoplankton (sampling bulletins for aquatic flora and fauna - Annex 6.2.6)
3.	Laboratory analysis for phytoplankton collected samples
4.	Processing and preliminary analysis for the obtained results

From CP 03 were collected *phytoplankton samples*, for qualitative and quantitative analysis as presented in Table 2.1.4.1.F.2.

Table 2.1.4.1.F.2. Phytoplankton samples

Critical Point Type	Critical Point (CP)		Samples collected for laboratory analysis							
			Qualitative analysis				Quantitative analysis			
			Left bank	Thalweg	Right bank	Average Sample	Left bank	Thalweg	Right bank	Average Sample
Secondary	03	03A	1	1	1	1	1	1	1	1
		03B	1	1	1	1	1	1	1	1
TOTAL			6			2	6			2



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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 6.2.6.

2.1.4.1.F.is. Sturgeons and barbell migration monitoring

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 December 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 01/31.12.2017 regarding air quality monitoring, related to this secondary critical points are those presented in Table 2.1.4.1.A.1.

In Table 2.1.4.2.A.1. is presented the number of collected air samples/"in situ" measurements made during 01-31 December 2017.

Table 2.1.4.2.A.1. Air samples repartition

Critical Point Type	Critical Point (CP)	Samples collected for laboratory analysis	Number of "in situ" measurements
Secondary	04 A and 04 B	4	4

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

2.1.4.2.B. Noise level monitoring

Activities conducted during 01/31.12.2017 regarding noise level monitoring, in this secondary critical points are those presented in Table 2.1.4.1.B.1.

In this campaign for noise level monitoring, conducted during 01/31.12.2017, measurements were made as presented in Table 2.1.4.2.B.1, below:

Table 2.1.4.2.B.1. Noise level monitoring

Critical Point Type	Critical Point (CP)	No. of measurements	
		zero naval traffic	intense naval traffic
Secondary	04 A	2	0
	04 B	2	0

For each sampling point has been established geographic coordinates, then trans-calculated in STEREO'70 projection system. The measurements have been coded according to the encoding instructions. Also, for each measurement a report for noise level has been completed, see Annex 6.2.2.

2.1.4.2.C. Soil quality monitoring

Activities performed during 01-31 December 2017, regarding soil quality monitoring, in this critical point are summarized in Table 2.1.1.C.1.

Number of soil samples collected from CP04 (A and B) is presented in Table 2.1.4.2.C.1.

Table 2.1.4.2.C.1. Soil samples

Critical Point Type	Critical Point	Samples collected for laboratory analysis	
		depth 5 cm	depth 30 cm
Secondary	CP 04A	2	2
Secondary	CP 04B	2	2

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 6.2.3.

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

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 phytoplankton (Table 1.2)
2.	Conducting the sampling campaign for phytoplankton (sampling bulletins for aquatic flora and fauna - Annex 6.2.6)
3.	Laboratory analysis for phytoplankton collected samples
4.	Processing and preliminary analysis for the obtained results

From CP 04 were collected *phytoplankton samples* for quantitative and qualitative analysis, as presented in Table 2.1.4.2.F.2.

Table 2.1.4.2.F.2. Phytoplankton samples

Critical Point Type	Critical Point (CP)		Samples collected for laboratory analysis							
			Qualitative analysis				Quantitative analysis			
			Left bank	Thalweg	Right bank	Average Sample	Left bank	Thalweg	Right bank	Proba Medie
Secondary	04	04A	1	1	1	1	1	1	1	1
		04B	1	1	1	1	1	1	1	1
TOTAL			6			2	6			2

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 6.2.6.

2.1.4.2.F.is. Sturgeons and barbell migration monitoring

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 December 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 01/31.12.2017, regarding air quality monitoring, in this secondary critical point are those presented in Table 2.1.4.1.A.1.

In Table 2.1.4.3.A.1. is presented the number of air samples collected/“in situ” measurements made during 01-31 December 2017.

Table 2.1.4.3.A.1. Air samples repartition

Critical Point Type	Critical Point (PC)	Samples collected for laboratory analysis	Number of “in situ” measurements
Secondary	07	2	2

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

2.1.4.3.B. Noise level monitoring

Activities conducted during 01/31.12.2017, regarding noise level monitoring, in this secondary critical point are those presented in Table 2.1.4.1.B.1.

In this campaign for noise level conducted during 01/31.12.2017, were made measurements as presented in Table 2.1.4.3.B.1, below:

Table 2.1.4.3.B.1. Noise level monitoring

Critical Point Type	Critical Point (CP)	No. of measurements	
		zero naval traffic	intense naval traffic
Secondary	07	2	0

For each sampling point has been established geographic coordinates, then trans-calculated in STEREO'70 projection system. The measurements have been coded according to the encoding instructions. Also, for each measurement a report for noise level has been completed, see Annex 6.2.2.

2.1.4.3.C. Soil quality monitoring

Activities performed during 01/31.12.2017, regarding soil quality monitoring, in this critical point were presented in Table 2.1.1.C.1.

Number of soil samples collected from CP07 is presented in Table 2.1.4.3.C.1.

Table 2.1.4.3.C.1. Soil samples

Critical Point Type	Critical Point	Samples collected for laboratory analysis	
		depth 5 cm	depth 30 cm
Secondary	PC 07	2	2

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 6.2.3.

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

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 objective: Aquatic flora and fauna monitoring

No.	Activities
1.	Organizing the sampling campaign for phytoplankton (Table 1.2)
2.	Conducting the sampling campaign for phytoplankton (sampling bulletins for aquatic flora and fauna - Annex 6.2.6)
3.	Laboratory analysis for phytoplankton samples
4.	Processing and preliminary analysis for the obtained results

In this campaign, from CP 07 were collected *phytoplankton samples* for quantitative and qualitative analysis, as presented in Table 2.1.4.3.F.2.

Table 2.1.4.3.F.2. Phytoplankton samples

Critical Point Type	Critical Point (CP)	Samples collected for laboratory analysis							
		Qualitative analysis				Quantitative analysis			
		Left bank	Thalweg	Right bank	Average Sample	Left bank	Thalweg	Right bank	Proba Medie
Secondary	07	1	1	1	1	1	1	1	1
TOTAL		3			1	3			1

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 6.2.6.

2.1.4.3.F.is. Sturgeons and barbell migration monitoring

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 December 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.



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

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



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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	5
4.	Ichthyologist 1	Cristea Victor	5
5.	Ichthyologist 2	Falka Istvan	0
6.	Hydrology	Poteraș George	8
7.	Hydraulic sedimentology	Ungureanu Gh Viorel	12
8.	Phytoplankton and aquatic macrophytes	Marinescu Florica	5
9.	Zooplankton	Adina Popescu	0
10.	Terrestrial invertebrates	Șerban Cecilia	3
11.	Aquatic macroinvertebrates	Florea Luiza	0
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).



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

The monitoring activities for the period 01-31 January 2018 are synthetically presented in the table 3.4.

Table 3.4. Activities for the period of 01.01-31.01.2018

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



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4. TIME SCHEDULE AND BUDGET PROJECT

4.1. Time schedule for project implementation

ID	Task Name	Start	Finish	B										B				15 Jan '18
				04 Dec '17					18 Dec '17					01 Jan '18				
				T	S	W	S	T	M	F	T	S	W	S	T			
1	Air monitoring: Conducting the campaigns for measurements and sampling for air qual AER: Realizarea campaniilor de măsuratori și prelevare de probe privind calitatea aerului la punctele critice secundare PC 03A, PC 03B, PC04A, PC04B și PC 07.	Mon 04.12.17	Mon 15.01.18															
2	80th Month	Mon 04.12.17	Fri 29.12.17															
3	81st Month	Wed 03.01.18	Mon 15.01.18															
4	Air monitoring: Contribution to Interim Report 17	Mon 04.12.17	Mon 15.01.18															
5	80th Month	Mon 04.12.17	Fri 29.12.17															
6	81st Month	Wed 03.01.18	Mon 15.01.18															
7	Noise monitoring: Conducting the campaigns 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															
8	80th Month	Mon 04.12.17	Fri 29.12.17															
9	Noise monitoring: Contribution to Interim Report RI17	Mon 04.12.17	Mon 15.01.18															
10	80th Month	Mon 04.12.17	Fri 29.12.17															
11	81st Month	Wed 03.01.18	Mon 15.01.18															
12	Water quality monitoring CP01, CP02 - Water (physical-chemical analysis)	Mon 04.12.17	Fri 29.12.17															
13	80th Month	Mon 04.12.17	Fri 29.12.17															
14	Water quality monitoring - Water (physical-chemical analysis) - physical-chemical analysis C66 (CP 01, CP 02)	Wed 03.01.18	Mon 15.01.18															
15	81st Month	Wed 03.01.18	Mon 15.01.18															
16	Water quality monitoring CP01, CP02 - Sediments (heavy metals, organic micropollutants)	Mon 04.12.17	Fri 29.12.17															
17	80th Month	Mon 04.12.17	Fri 29.12.17															
18	Water quality monitoring - Sediments (heavy metals, organic micropollutants) - physical-chemical analysis C66 (CP 01, CP 02)	Wed 03.01.18	Mon 15.01.18															
19	81st Month	Wed 03.01.18	Mon 15.01.18															
20	Soil monitoring - CP 01, CP 02, CP03 (A+B), CP04 (A+B), CP07 - Lumbricidose presence, abundance	Mon 04.12.17	Fri 29.12.17															
21	80th Month	Mon 04.12.17	Fri 29.12.17															
22	Soil monitoring - CP 01, CP 02, CP03 (A+B), CP04 (A+B), CP07 - Mineral salts, humic acids, organic matter, physical-chemical analysis	Mon 04.12.17	Fri 29.12.17															
23	80th Month	Mon 04.12.17	Fri 29.12.17															
24	Soil monitoring - physical-chemical analysis C28 (CP 01, CP 02, CP03, CP04, CP07)	Wed 03.01.18	Mon 15.01.18															
25	81st Month	Wed 03.01.18	Mon 15.01.18															

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ID	Task Name	Start	Finish	B												B				
				04 Dec '17					18 Dec '17			01 Jan '18				15 Jan '18				
				T	S	W	S	T	M	F	T	S	W	S	T	M				
26	Aquatic flora monitoring CP 03A/03B/04A/04B/07 - phytoplankton - sampling, composition, abundance, biomass	Mon 04.12.17	Fri 29.12.17																	
27	80th Month	Mon 04.12.17	Fri 29.12.17																	
28	Hydromorphological monitoring in CP 01/CP 02 - level and turbidity measurements in hydrometric automatic station of INCDPM	Mon 04.12.17	Mon 15.01.18																	
29	80th Month	Mon 04.12.17	Fri 29.12.17																	
30	81st Month	Wed 03.01.18	Mon 15.01.18																	
31	Hydromorphological monitoring in CP 01/CP 02 - Single-beam measurements - sections profiling	Mon 04.12.17	Mon 15.01.18																	
32	80th Month	Mon 04.12.17	Fri 29.12.17																	
33	81st Month	Wed 03.01.18	Mon 15.01.18																	
34	Hydromorphological monitoring in CP 01/CP 02 - Flow rate monitoring (volume, velocity, level)	Mon 04.12.17	Mon 15.01.18																	
35	80th Month	Mon 04.12.17	Fri 29.12.17																	
36	81st Month	Wed 03.01.18	Mon 15.01.18																	
37	Ichtyofauna biodiversity monitoring CP 01/02/03/04/07 - trails and migration periods monitoring for sturgeon specimens with ultrasonic	Mon 04.12.17	Mon 15.01.18																	
38	80th Month	Mon 04.12.17	Fri 29.12.17																	
39	81st Month	Wed 03.01.18	Mon 15.01.18																	
40	Ichtyofauna biodiversity monitoring CP 01 - Data downloading from the monitoring systems for sturgeons migration	Mon 04.12.17	Mon 15.01.18																	
41	80th Month	Mon 04.12.17	Fri 29.12.17																	
42	81st Month	Wed 03.01.18	Mon 15.01.18																	
43	Ichtyofauna biodiversity monitoring CP 01 - Sturgeons active monitoring with VR100	Mon 04.12.17	Fri 29.12.17																	
44	80th Month	Mon 04.12.17	Fri 29.12.17																	
45	Monthly reports	Mon 04.12.17	Mon 15.01.18																	
46	80th Month	Mon 04.12.17	Fri 29.12.17																	
47	81st Month	Wed 03.01.18	Mon 15.01.18																	

4.2. Budget and expenses incurred during the reporting period

Justifying calculation for 01 - 31 December 2017

I. EXPERTS EXPENSES				
No.	Experts	No. of working days	Fee (Euro on working day)	Maximum total value of the fees
		Post - Construction (36 months)		
1	Project leader	5	240	1.200,00 EUR
2	Chemist 1	0	200	0,00 EUR
3	Chemist 2	5	200	1.000,00 EUR
4	Ichthyologist 1	5	330	1.650,00 EUR
5	Ichthyologist 2	0	200	0,00 EUR
6	Hydrology	8	200	1.600,00 EUR
7	Hydraulic- sedimentology	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	3	125	375,00 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				10.805,00 EUR
II EXPENSES with JUSTIFICATION				
1	Ichthyology- 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. MATHEMETICAL MODELING				
1	Software acquisiton+hardware+ necessary licenses			0,00 EUR
2	Acquisition of bathymetric data, necessary for the mathematical modeling			6.927,50 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				6.927,50 EUR
TOTAL without V.A.T.				17.732,50 EUR

4.3. Budget and expenses for the next period

Estimated calculation for 01 - 31 January 2018

I. EXPERTS EXPENSES				
No.	Experts	No. of working days	Fee (Euro on working day)	Maximum total value of the fees
		Post - Construction (36 months)		
1	Project leader	5	240	1.200,00 EUR
2	Chemist 1	5	200	1.000,00 EUR
3	Chemist 2	3	200	600,00 EUR
4	Ichthyologist 1	5	330	1.650,00 EUR
5	Ichthyologist 2	0	200	0,00 EUR
6	Hydrology	8	200	1.600,00 EUR
7	Hydraulic- sedimentology	6	200	1.200,00 EUR
8	Aquatic phytoplankton and macropytes	5	130	650,00 EUR
9	Zooplankton	0	130	0,00 EUR
10	Terrestrial invertebrates	3	125	375,00 EUR
11	Aquatic macroinvertebrates	0	125	0,00 EUR
12	Terrestrial flora and fauna	0	125	0,00 EUR
13	Ornithologist 1	8	200	1.600,00 EUR
14	Ecologist 1	2	140	280,00 EUR
15	Ecologist 2	5	140	700,00 EUR
16	Evaluator	5	330	1.650,00 EUR
SUBTOTAL EXPERTS' FEES				12.505,00 EUR
II EXPENSES with JUSTIFICATION				
1	Ichthyology- 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	Software aquisiton+hardware+ necessary licenses			0,00 EUR
2	Acquisition of bathymetric data, necessary for the mathematical modeling			10.000,00 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				10.000,00 EUR
TOTAL without V.A.T.				22.505,00 EUR

5. CONCLUSIONS, RECOMMENDATIONS, WARNINGS

- 5.1 This Monthly Report reflects monitoring activities from December 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, at 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.
- 5.4 In December 2017, hydromorphological monitoring activity mainly based on ADCP measurements (flow rates and velocities) in main critical points CP01 and CP02 area and single-beam bathymetric measurements for sections profiling in those 2 critical points, in conditions with high flow values compared with historical data from this period of the year.

6. ANNEXES

6.1 Relevant correspondence

6.2 Recording bulletins for sampling/measurements

6.2.1: AIR sampling sheets

6.2.2: NOISE sampling sheets

6.2.3: SOIL sampling sheets

6.2.4: WATER sampling sheets

6.2.5: SEDIMENTS sampling sheets

6.2.6: AQUATIC FLORA and FAUNA sampling sheets

6.3 Experts' activity reports

6.4 Images of activities

6.5 Hydromorphology monitoring