

Monitoring plan for Sub- Activities 2.2 and 2.3

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Abbreviations

MMPI	Ministry of the Sea, Transport and Infrastructure, Croatia
HNWL	High Navigable Water Level
LNWL	Low Navigable Water Level
IWW	Inland waterways transport
CEF	Connecting Europe Facility
RB/LB	Right river bank/left river bank
ENR	Etiage Navigable et de Régularisation
Rkm	River kilometre
ENC	Electronic Navigational Charts

1. Scope of document

Section of the Danube river in the length of 137,5 km is a border zone between Croatia and Serbia, the TEN-T Rhine-Danube Corridor. Nevertheless, countries are trying to cooperate in various ways on a technical level in order to overcome negative consequences to navigation caused by the number of potential bottlenecks.

Ministries from both countries have signed the bilateral Agreement on navigation on inland waterways (IWWs) and their technical maintenance, on October 13th, 2009, in Belgrade as a platform for technical actions.

The Interstate Serbian - Croatian Commission for the implementation of the Bilateral Agreement was founded in 2010. The governments have named the members of the Commission, which had the first session on 14th of October 2010 where two joint expert groups were established: Joint expert group for waterway marking and Joint expert group for technical maintenance and monitoring of the waterway conditions.

These expert groups consist of four members per each country. The initial tasks of the joint expert groups included drawing up the Regulations on waterway marking as well as the Regulations on technical maintenance and monitoring of the waterway conditions.

Two countries entered in common CEF action to provide the foundations for a joint strategy and coordinated activities of Croatia and Serbia for further improvement of navigation conditions on the Danube River taking nature protection into consideration.

Joint strategy and coordinated activities of Croatia and Serbia will be continuously adjusted to the river conditions through appropriate planning.

Monitoring plan¹ will provide the information on future monitoring activities (list of monitoring actions with short description, duration and location) on the common Croatian/Serbian Danube section.

2. Activity 2 - Monitoring of the Croatian/Serbian Danube common section (river-km 1433,1 to river-km 1295,5)

Several factors negatively affect navigation in the Croatian/Serbian common section of the Danube River. In particular, the hydro-morphological conditions are dynamic and can affect the good navigation status.

Like all other river users, inland waterway development and management operates within the framework of EU environmental laws, which include the Birds (2009/147/EC) and Habitats (92/43/EEC) Directives, so called "nature directives", as well as the Water Framework Directive (WFD). In addition, national and international protected areas legislation apply and biodiversity policies have to be considered such as the EU Biodiversity Strategy 2030.

The Danube as an ecosystem is essential to preserve the living conditions of flora and fauna in line with the Birds and Habitats Directives, national and international nature conservation legislation. The overall objective of the two EU nature directives is to conserve Europe's most valuable and endangered habitats and wildlife, including those that are dependent on rivers. Central to the two nature directives is the creation of a Natura 2000 network which protects core sites for the species and habitat types listed in the Annexes of both Directives.

The Danube navigation project is situated in an area of outstanding ecological features and protected areas on national and international level:

¹ Monitoring plan contains short and concise descriptions of monitoring activities that will be performed and does not represent the terms of reference.

- the most natural floodplains on the first 2,000 km of the Danube (source to Iron Gate), which corresponds to 50% of the most natural floodplains on the entire Danube (excluding the Danube Delta) (Joint Danube Survey, ICPDR 2014)
- 50% of the most natural river sections on the first 2000 km (Joint Danube Survey, ICPDR 2014)
- the largest floodplain forests on the entire Danube River
- the highest breeding density of white-tailed eagles in continental Europe (over 100 breeding pairs)
- the most important spawning area for river fish (Kopački Rit) next to the Danube Delta
- probably the last refuge for the almost extinct ship sturgeon (*Acipenser nudiiventris*)
- several large national protected areas totalling about 82,000 ha (Nature Park Kopački Rit (HR), Nature Park Tikvara (RS), Special Nature Reserve Karađorđevo (RS), Special Nature Reserve Gornje Podunavlje (RS) as well as Natura 2000 sites (HR) (the whole river stretch and adjoining floodplains in Croatia are designated as NATURA 2000 sites)
- Ramsar sites Kopački Rit (HR) and Gornje Podunavlje (RS)
- the world's first 5-country biosphere reserve Mura-Drava-Danube, which is to be recognized by UNESCO in 2021. Most of the surveyed "bottlenecks" for navigation (Plovput 2006, 2011) are located in the core zone of the 5-country biosphere reserve.
- has a high potential for river and floodplain restoration².

In order to achieve proper navigation, in Activity 2 relevant hydro morphological and eco biogeographic data will be collected along the Croatian/Serbian common section (137.5 km long common Danube stretch). This information will cover hydrological conditions in the waterway on the one hand (especially given the need for improvement of navigation conditions) and, on the other, critical components of biodiversity (fish, benthic habitats, birds, floodplain habitats) and will be integrated into a single geo-information database.

2.1. Sub-Activity 2.2 Monitoring of the parameters relevant to the work for the fairway upgrade for the Croatian/Serbian common section of the Danube

This Sub-Activity will monitor the hydrological, hydraulic and morphological characteristics of the Croatian/Serbian common section of the Danube.

The Croatian/Serbian common section of the Danube (rkm 1433.1 – 1295,5) is characterised as a free-flowing section which includes sections with an easily scouring riverbed. Therefore, surveys will be executed along the entire common section of the Danube, with specific focus on the critical locations.

INFORMATION:

Ministries from both countries have signed the bilateral Agreement on navigation on IWWs and their technical maintenance ("Sporazum o plovidbi vodnim putovima na unutarnjim vodama i njihovom tehničkom održavanju"), on October 13th, 2009, in Belgrade as a platform for technical actions.

The Interstate HR-SRB Commission for the implementation of the Bilateral Agreement was founded in 2010. The governments have named the members of the Commission, which had the first session on 14th of October 2010 where two joint expert groups were established: Joint expert group for waterway marking and Joint expert group for technical maintenance and monitoring of the waterway conditions.

These expert groups are comprised of four members per each country. The initial tasks the joint expert groups included drawing up the Regulations on waterway marking as well as the Regulations on technical maintenance and monitoring of the waterway conditions. The main objective of joint expert groups is elaboration of the technical elements (marking and maintenance of the Danube waterway), monitoring and harmonization of technical parameters.

In 2014, the HR-SRB expert group established a prioritization of critical bottlenecks on the joint Danube section, where 17 critical sectors were identified. Out of 17 bottlenecks, 7 critical locations were identified as "most critical". Due to constant changes in the riverbed, new critical sectors might emerge during the project term and already identified ones might be solved.

² Reference: Fluvius (2013): Assessment of the River and Floodplain Restoration Potential in the Transboundary UNESCO Biosphere Reserve "Mura-Drava-Danube". Study commissioned by WWF Austria. Vienna. Study for download: <http://www.amazon-of-europe.com/en/river-restoration/>

Tasks that will be performed within this sub-activity are following:

1. Riverbed surveys

Single beam surveying:

- 1 x per year riverbed surveys on 1376 control profiles (density of cross profiles 100m, from river bank to river bank) of the entire common section of the Danube and 8 control profiles of the Drava river with single-beam equipment, once per year for every year of project implementation (2022-2023). Special focus will be on the critical sections defined in table below:

Table 1: List of potential critical locations on the common Croatian/Serbian section with their characteristics that will be surveyed with SB

N o.	Name of critical location	Characteristics of critical locations	From rkm	To rkm	Length of section (rkm)	Priority of location: 1-5	Type of surveying
1	Batina/Bezdan	reduced fairway width at ENR	1429	1425	4	5	SB
2	Siga-kazuk	reduced fairway width at ENR	1424.2	1414.4	9.8	5	SB
3	Apatin	reduced depth, reduced fairway width at ENR, bank erosion	1408.2	1400	8.2	1	SB
4	Židovski/Čivutski rukavac	reduced depth, reduced fairway width at ENR, bank erosion	1397.2	1389	8.2	2	SB
5	Drava confluence	reduced fairway width at ENR	1383.4	1381.6	1.8	2	SB
6	Aljmaš	reduced fairway width at ENR	1381.4	1378.2	3.2	5	SB
7	Staklar	reduced depth, reduced fairway width at ENR, bank erosion	1376.8	1373.4	3.4	2	SB
8	Erdut	reduced fairway width at ENR	1371.4	1366.4	5	5	SB
9	Erdut/Bogojevo	reduced fairway width at ENR	1366.2	1361.4	4.8	4	SB
10	Dalj	reduced fairway width at ENR	1357	1351	6	5	SB
11	Borovo 1	reduced depth, reduced fairway width at ENR, bank erosion	1348.4	1343.6	4.8	4	SB
12	Borovo 2	reduced fairway width at ENR	1340.6	1338	2.6	4	SB
13	Vukovar	reduced depth, reduced fairway width at ENR, bank erosion, wide river bed	1332	1325	7	4	SB
14	Sotin	reduced depth, reduced fairway width at ENR, right bank erosion	1324	1320	4	1	SB
15	Opatovac	reduced fairway width at ENR	1315.4	1314.6	0.8	4	SB
16	Mohovo	reduced depth, reduced fairway width at ENR, underwater rocky bottom	1311.4	1307.6	3.8	1	SB
17	Ilok/Bačka Palanka	reduced fairway width at ENR	1302	1300	2	5	SB

Total rkm	79.4	
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Legend: Priority of location

1	
2	
3	
4	
5	



Figure 1: Map of potential critical locations on the common Croatian/Serbian section (source: MMPI)

Multi beam surveying:

- Twice per year measurements in period of LNWL and in period of HNWL in order to analyse morphological changes in different flow regimes on most critical locations (2022) on the common Croatian/Serbian section. During 2023 measurements will be done once per year according to an Annual work plan and standard operational practice in Croatia. Locations where MB surveying will be performed are defined in table below:

Table 2: List of potential critical locations on the common Croatian/Serbian section with their characteristics that will be surveyed with MB

No.	Name of critical location	Characteristics of critical locations	From rkm	To rkm	Length of section (rkm)
1	Apatin	reduced depth, reduced fairway width at ENR, bank erosion	1404	1400	4
2	Židovski/Čivutski rukavac	reduced depth, reduced fairway width at ENR, bank erosion	1397.2	1389	8.2
3	Drava confluence	reduced fairway width at ENR	1383.4	1381.6	1.8
4	Staklara	reduced depth, reduced fairway width at ENR, bank erosion	1376.8	1373.4	3.4

5	Borovo 1	reduced depth, reduced fairway width at ENR, bank erosion	1348.4	1343.6	4.8
6	Vukovar	reduced depth, reduced fairway width at ENR, bank erosion, wide river bed	1328	1325	3
7	Sotin	reduced depth, reduced fairway width at ENR, right bank erosion	1323	1321	2
TOTAL:					27.2

Based on the initial surveying of critical locations by single-beam surveying and determination of their condition and on the basis of the depth control by the marking vessel, additional multi-beam surveying will be performed on locations that are most critical. Given the above, there is a possibility that the sectors that are now defined as critical are no longer critical during implementation of the “Preparing FAIRway 2 works in Rhine-Danube Corridor” project and that some other critical sectors might appear.

Multi beam surveying will be entirely performed with surveying vessel purchased within the FAIRway Danube project.



Figure 2: Connecting Europe surveying vessel (source: MMPI)

NOTE: In case of any errors or malfunction of MB system, surveying will be performed with SB system (density of cross profiles 50 meters).

2. Conduct bridges and installations/waterway crossing infrastructure measurements/surveys

Geodetic surveying of the bridges and all infrastructure will be done once during project implementation.

3. Conduct inventorisation of existing river regulation structures once during project implementation

It is necessary to determine the condition, length and position of structures on the entire common Croatian/Serbian section. Detailed map will be developed with clearly marked structures on the entire Danube stretch. Structures will be geodetically surveyed, photographed and documented. Following factors will be documented: location/position of every structure, length, type of every structure and structure conditions (poor status, fair status, good status, excellent status).

4. Conduct velocity and flow measurements four times per year, for every year of project implementation

Measurements will be conducted with ADCP device. List of critical locations is defined in table below:

Table 3: List of locations where velocity and flow measurements will be conducted

No.	Name of critical location	From rkm	To rkm	Length of section (rkm)
1	Batina/Bezdan	1429	1425	4
2	Apatin	1408.2	1400	8.2
3	Drava confluence	1383.4	1381.6	1.8
4	Erdut/Bogojevo	1366.2	1361.4	4,8
5	Borovo 1	1348.4	1343.6	4.8
6	Vukovar	1332	1325	7
7	Ilok/Bačka Palanka	1302	1300	2

For each named location, precise cross profile will be defined.

- 5. Conduct suspended sediment and bedload measurements** four times per year during different hydrological conditions (low water period, high water period and additional measurements), for every year of project implementation (2022- 2023). Suspended sediment measurements must be conducted with combination of acoustic and physical sampling: physical and acoustic sampling needs to be done simultaneously on 3 verticals, with at least 3 sampling points on each vertical. Acoustic sampling must be conducted for surface flow layer across the entire river width. Based on these measurements, suspended sediment yield must be calculated using the flow data acquired with ADCP. Bedload sediment transport measurements must be conducted on the same vertical as suspended sediment measurements. List of critical locations is defined in table below:

Table 4: List of locations where sediment transport measurements will be conducted

No.	Name of critical location	From rkm	To rkm	Length of section (rkm)
1	Batina/Bezdan	1429	1425	4
2	Apatin	1408.2	1400	8.2
3	Drava confluence	1383.4	1381.6	1.8
4	Erdut/Bogojevo	1366.2	1361.4	4.8
5	Borovo 1	1348.4	1343.6	4.8
6	Vukovar	1332	1325	7
7	Ilok/Bačka Palanka	1302	1300	2

- 6. Conduct geotechnical exploration and investigation works** on six locations along the common Croatian/Serbian section of the Danube. Geotechnical exploration and investigation works is a group of all explorations and investigations that are conducted in order to determine conditions in soil, rock and underground water. Results are processed and synthesized into a report – geotechnical report.

Geotechnical exploration and investigation work have to collect all necessary information about the soil and underground water for a final design of the structure and need to ensure that the demands of the construction will be fulfilled. The aim is to perform sampling on defined locations to be able to identify location's soil and to perform laboratory testing of collected soil in order to determine its geotechnical properties. It should include the classic sediment analysis (size distribution, granulometric analysis) and a survey of top layer structures (potentially coarse particles on top with self-armouring effects).

Approximate location of works:

Table 5: List of locations where geotechnical exploration and investigation works will be conducted

No.	Name of critical location	From rkm	To rkm	Length of section (rkm)	Type of riverbed
1	Apatin	1408.2	1400	8.2	sand
2	Židovski/Čivutski rukavac	1397.2	1389	8.2	sand
3	Drava confluence	1383.4	1381.6	1.8	sand
4	Staklara	1376.8	1373.4	3.4	sand
5	Erdut/Bogojevo	1366.5	1368.0	1.5	rocky
6	Mohovo	1311.4	1307.6	3.8	rocky

Detailed micro-locations will be determined later in the project implementation phase after involvement and detailed elaboration with relevant stakeholders of the interdisciplinary Forum under Sub-Activity 3.1 of the project.

7. Development and delivery of a Geographical Information System (GIS) database for all the data collected within Sub-Activity 2.2 and 2.3.

GIS database will contain visualisation of existing river regulation structures (see description under point 3) and all bio-diversity data, that will be collected within monitoring of the common Croatian/Serbian section. All collected hydro-morphological data will be gathered in national WAMS system³. Data is available upon request to general public.

NOTE: All information related to water levels will be collected from water level gauges that were modernised/installed through FAIRway Danube project.

2.2. Sub-Activity 2.3 Catalogue biodiversity components of the Croatian/Serbian common section of the Danube

In order to prepare a catalogue for the ichthyofauna, ornithofauna, river bottom types (benthos) and floodplain habitats along the Croatian/Serbian Danube common section following tasks will be performed:

1. Fish monitoring study

Ichthyofauna of this stretch of the Danube river is made of over 65 species, among them many are threatened and protected under EU directives. The aim of fish monitoring study is to determine:

³ <https://www.vodniputovi.hr/eu-projekti/fairway/razvijen-sustav-upravljanja-plovnim-putovima-u-republici-hrvatskoj-wams/>

- a) fish populations on Croatian/Serbian common section of the Danube (incl., population parameters as biomass, age classes, abundance etc.);
 b) the exact locations and their floodplain areas that certain species of freshwater fish use for spawning, sheltering and wintering.

Particular importance should be given to NATURA 2000 and threatened species according to national Red Lists, bottom dwelling species such as sturgeons (Acipenseridae), lampreys (Petromyzontidae), perches (Zingel zingel and Zingel streber), gobies (Gobiidae), as well as migratory fish species such as eel (*Anguila anguila*). Scope of the monitoring area are given as Fig. 3-13. Within the borders of scope area all prospective sites for fish spawning, shelter and wintering should be included and sampled at least once per appropriate season (spawning, summer, winter). Attention during fish monitoring should be on monitoring of invasive species of fish. According to last monitoring their habitats are stone embankments and T-groins so for future planning these results have to be taken into consideration.



Figure 3: rkm 1433 - 1423



Figure 4: rkm 1423 - 1413



Figure 5: rkm 1413 - 1403



Figure 6: rkm 1403 - 1393



Figure 7: 1393 - 1383



Figure 8: 1383 - 1366



Figure 9: rkm 1366 - 1351



Figure 10: rkm 1351 – 1339

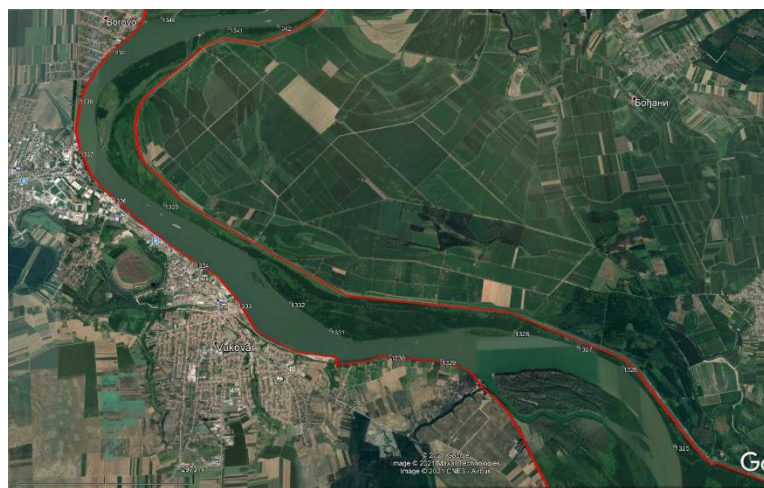


Figure 11: rkm 1339 - 1325



Figure 12: rkm 1325 -1313



Figure 13: rkm 1313 - 1295

Fish inventorisations should be prepared by conducting the following sampling methods:

- **Electrofishing**
Electrofishing is the most commonly used and most effective method for catching freshwater fish. It is carried out from a specialized vessel, and the direction and speed of movement depends on the habitat and the speed of water flow. Field research is conducted during the day. During sampling, special attention should be paid to the characteristic habitats of freshwater fish. At 30% of the total sampling length, nocturnal electrofishing is also required to record species active at night.
- **Electrified dredge**
Sampling by electrified dredge is carried out exclusively during the day to record demersal species of freshwater fish that are usually active at night.

Above named sampling will be performed on the common Croatian/Serbian section as given in figures 3 - 13 in the period between March and October 15th.

Following information should be gathered through the methods:

- Quantification of stock sizes (fish abundance and biomass)
- Information on age structure of population
- Species composition

In addition, winter sampling methods will be performed 1/year on the common Croatian/Serbian section as given in figures 3 -13 and will consist of:

- monitoring of fish wintering area by sonars. Locations of wintering sites within the Danube River (bank-to-bank) and main side-arms would be mapped using GPS device.
- winter fish tracking.

2. Bird monitoring study

Ornithofauna of this stretch of the Danube river includes over 250 species, among them many are threatened and protected under EU directives. The aim of bird monitoring study is to determine:

- importance of the joint river stretch for sand bar nesting species (e.g., Little-ringed Plover *Charadrius dubius*, terns (*Sternidae*) etc.) - all appropriate sand bars and sand banks should be visited twice during the breeding season (May-June) at optimal water levels to determine size and distribution of breeding populations. Breeding locations should be mapped using GPS devices.
- importance of the joint river stretch for river bank nesting species (e.g., Sandmartin *Riparia riparia*, Kingfisher *Alcedo atthis*, European Bee-eater *Merops apiaster* etc.) - all river banks should be visited twice during the breeding season (May-June) at optimal water levels to determine size and distribution of breeding populations. Breeding locations should be mapped using GPS devices.
- importance of the joint river stretch and adjacent floodplains for colonial nesting birds (e.g., herons *Ardeidae*, cormorants *Phalacrocoracidae*, etc.) - all colonies should be visited twice during the breeding season (April-June) to determine size and distribution of breeding populations. Breeding locations should be mapped using GPS devices.
- importance of the joint river stretch and adjacent floodplains for breeding raptors *Accipitridae* (e.g., White-tailed Eagles *Haliaeetus albicilla*, Black Kite *Milvus migrans*, Marsh Harrier *Circus aeruginosus* etc.) - within the boundaries of monitoring area (Fig 3-13) all nests of raptors should be mapped during winter (e.g. White-tailed Eagle) or territories of breeding pairs should be mapped during the breeding season (e.g., Black Kite *Milvus migrans*, Marsh Harrier *Circus aeruginosus* etc.).
- importance of the joint river stretch and adjacent floodplains for other breeding wetland related birds (e.g., Ferruginous Duck *Aythya nyroca*, Greylag Goose *Anser anser*, reed-nesting songbirds such as warblers etc.) - all appropriate wetlands (marshes, oxbows etc.) within the boundaries of monitoring area (Fig 3-13) should be visited twice during the breeding season (April-June) and distribution and population size of breeding wetland related birds should be established.
- importance of the joint river stretch and adjacent floodplains for passage wetland related birds - joint river stretch should be visited by boat once per month during spring (March-April) and fall migration (September-October) and all wetland birds present on the river (bank to bank) should be counted per river kilometre. Locations of larger bird concentrations should be mapped using GPS devices. All appropriate wetlands (marshes, oxbows etc.) within the boundaries of monitoring area (Fig 3-13) should be visited at least twice during spring (March-April) and fall migration (September-October) and all wetland birds present should be counted.
- importance of the joint river stretch for wintering waterbirds - joint river stretch should be visited by boat once per month during winter (November-February) and all wetland birds present on the river (bank to bank) should be counted per river kilometre. Locations of larger bird concentrations should be mapped using GPS devices.

Particular importance should be given to NATURA 2000 and threatened species. For each species established standard monitoring protocols should be followed in detail (e.g., Mikuška et al. 2007; Croatian national biodiversity monitoring protocols etc.).

References:

Mikuska T. Fenyosi L. Tomik A. Eichner K. Mikuska A. & Šalić V. (2007) Protokol za praćenje stanja (monitoring) ptica (Aves) u aluvijalnim nizinama kontinentalnog dijela Hrvatske. In: Purger J.J. (Ed.) Priručnik za istraživanje bioraznolikosti duž rijeke Drave. Sveučilište u Pečuhu, Pecs.

Croatian national biodiversity monitoring protocols:

<http://www.haop.hr/hr/tematska-podrucja/prirodne-vrijednosti-stanje-i-ocuvanje/pracenje-stanja-prirode/provedba-pracenja>

This methodology is divided into two groups:

Priority research that will cover birds that live on or immediately next to the water as they are most affected by the direct impact of the intervention in the riverbed and changes in the water regime:

- Sand bar nesting species
It is necessary to explore entire length of the common Croatian/Serbian section of the Danube river to determine number and type of species that nest on all present bare river islands.
- Steep river banks nesting species
It is necessary to explore entire length of the common Croatian/Serbian section of the Danube river and survey existing holes in the river banks with the associated species and mark other suitable habitats.
- Passage bird fauna
- Wintering bird fauna
It is necessary to pass the entire length of the river to explore backwaters and still waters to count and list all observed bird species.

Other researches that will cover groups of birds living on associated habitats where any change in the water regime is indirect and slower:

- Breeding raptors
- Colonially nesting birds
- Other breeding wetland related birds
- Additional non-systematic and incidental surveys
Observation of additional and significant species is done by random observation during the implementation of these research methods.

3. River bottom types (benthos) inventorisation for providing necessary data for creation of the river bottom types catalogue. This methodology covers sampling of macrozoobenthos. Sampling of transboundary waters macrozoobenthos should be performed on the common Croatian/Serbian section as determined in figures 3 -13 between May and October for every year of the project in accordance with the macrozoobenthos sampling protocol.

4. Habitat inventorisation that will provide necessary data for development of the floodplain habitats catalogue.

The purpose of the floodplain habitat study is twofold:

- to collect the data on existing floodplain habitats mapping in Croatia and Serbia and merge them into a single GIS based habitat map along the entire common section of the Danube. This map should cover the whole area of the active floodplain (from dike-to-dike) of the common transboundary section of the Danube.
- to collect and map NATURA 2000 priority floodplain habitats that are water dependent and sensitive to water level changes and natural hydro morphological dynamics along the river.

It is necessary to conduct mapping of the following habitats listed in the Annex I of the EU Habitats Directive:

- Habitat type 3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoeto-Nanojuncetea*.
- Habitat type 3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation.
- Habitat type 3270 Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation.

- Habitat type 6440 Alluvial meadows of river valleys of the *Cnidion dubii*
- Habitat type 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) includes primary and gallery forests naturally developing along the meandering river banks

Mapping of habitat types 3130, 3150, 3270, 6440 and 91E0 should be carried out on the common Croatian/Serbian section as determined in Figures 3 -13 during LNWL in summer, after mid-July to late August when the water level is lower and the vegetation is fully developed.

Within the monitoring area all prospective sites for development of those two priority floodplain habitats should be included and sampled once per year during the appropriate vegetation season.

Mapping of NATURA 2000 priority floodplain habitats should be done at scale 1:5000 and represented as a polygon where surface areas are bigger than 0,5 ha, and by line or point in the case of surface areas below 0.5 ha.

Habitat catalogue will comprise of the list of important habitats listed according to Natura 2000 classification, as well as National Habitat Classifications and their spatial distribution along project area in form of the habitat map (spatially oriented GIS database).

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