POTENTIAL TRANSBOUNDARY IMPACT for site NATURA 2000 in BULGARIA

As we have already mentioned in the documentation, referring to the cross-border impact of this work on the protected area in Bulgaria, the proposed project includes the Argeş and Dâmboviţa rivers arrangement for navigation and other use according to the Romanian and European Unity standards and rules.

The main elements of *general impact*, associated with the construction and exploitation of the Arges and Dâmboviţa Rivers refer to:

- · Flora and fauna:
- · Atmospheric emissions, water pollution, noise due to traffic;
- · Storage of construction materials waste;
- · Erosion:
- · Change of landscape.

As regards the site NATURA 2000 in Bulgaria, mentioned in your note, namely:

- 1. Pozharevo Island, code BG0000237;
- 2. Kompleks Kalimok, code BG0002030;
- 3. Blato Malak Preslavets, code BG0002065;
- 4. Garvansko Blato, code BG0002064;
- 5. Ostrov Chayka, code BG0000534;
- 6. Kalimok-Brashlen, code BG0000377;
- 7. Pozharevo-Garvan, code BG0000530;

we analyzed the anticipated impact on the flora and fauna in two main periods: construction and exploitation.

Globally watching the aspect of a cross border anticipated impact, the only vector that might create a negative impact is WATER.

So, we highlight the following general aspects:

- During the construction the only type of works that might have a negative impact are the dredging works. Theoretically, they might influence, directly and indirectly, the alive by the created alluvium and water muddling. This impact is relative and reduces according to the distance where the interest biological objects are.
- During the exploitation, the only relative impact might be due to the growth of ship traffic on the Danube. As the traffic shall change significantly in about 20 years (as it results from the specialty studies presented in the submitted documentation and in this one), the fact that the biological characteristics of the protected areas might also change in time shall be taken into consideration. Such an evaluation is not the object of this study.

Referring to the anticipated impact on the protected areas NATURA 2000 in Bulgaria, abovementioned, we give again the arguments mentioned in the previous documentation and valid for these sites too.

So:

The only element of national importance, both for Bulgaria and Romania that might be affected by the project is the Danube. The environment that might be affected in the border area with Bulgaria (on the Danube) is represented by the aquatic ecosystem of the Danube and its banks. The works proposed for the Argeş and Dâmboviţa rivers use planning for navigation and other uses are done only on those watercourses. To facilitate the ship traffic on the two rivers, works at the Oltenita port were proposed – that are mainly executed, in the present phase only use planning

works being necessary. We highlight the fact that these works are mainly on the Argeş River course So, the water course of the Danube shall be only little influenced by the works, and the water quality, flora and fauna in the area are only little affected.

- During the execution of the works, the riverbed stirring in order to grow the navigation depth, has a negative impact on the habitats in the area of the works, because of the water turbidity growth, having as direct and immediate result the diminishing of sunlight entering the water to the detriment of photo-dependent organisms. A consequence is the withdrawn on the mobile fauna from the works area towards favorable areas, but it is considered that this impact shall be only local, strictly zonal and only during the dredging works.
- According to the traffic forecast (the figure below), an intensification of naval traffic on the Danube is forecast after the finalization of the river use planning works (after 2020) and the operation of the navigable channel that is the object of this study.

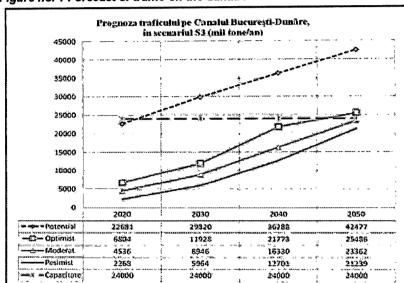


Figure no. 1 Forecast of traffic on the danube

At present, the Danube is highly navigated and that is why the habitats, the omithological, fish, amphibian, and terrestrial fauna that populates the water or banks will suffer no potential impact increased because of the ship traffic induced by the finalization and giving into exploitation of the navigable channel that makes the object of this study.

In addition, eutrophication and alteration of floristic communities induced by the traffic growth or loss of aquatic habitat shall not take place. Most river section will remain unaffected by increased vessel traffic.

As regards the levels of total equivalent noise generated by the traffic, they will be in the legal admitted limits. Due to the distances to the nesting place of birds in the sites NATURA 2000, an important sound impact is not anticipated, except for the species that populate the water and banks of the Danube. The traffic speed shall be reduced and the measure shall reduce the water turbidity.

The possible accidental leak of pollutants or other materials in the water of the two rivers, during the execution of the works, may reach the Danube. This kind of pollution is easily noticed at the water surface and the necessary measures may be

taken, so that the water of the Danube in the area of the Natura 2000 sites is not affected.

The water quality during operation may be affected by the loading / unloading of goods (bulk) in the ports area, especially in the area of Oltenia Port. Some of these materials may be lost on the way and they may reach the water body (The Danube). Depending on the amount and nature of losses, their effects on the water quality and even on the bank morphology can be significant. However having in view the important distance from Natura 2000 sites, these losses will not affect the quality of the water body in this area. Because previously there were given general data, we present an analysis of the anticipated impact of each Natura 2000 site on the Bulgarian territory from the previously mentioned list.

1. POZHAREVO ISLAND, COD BG0000237, SPA

The site is located at 3.8 km from the Oltenita Port (fig.2).

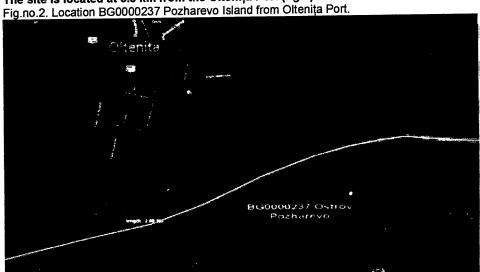
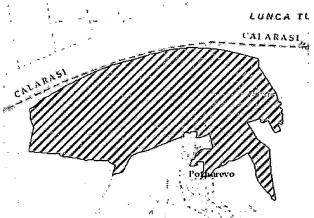


Fig. 3. Location BG0000237 Pozharevo Island from the Danube.

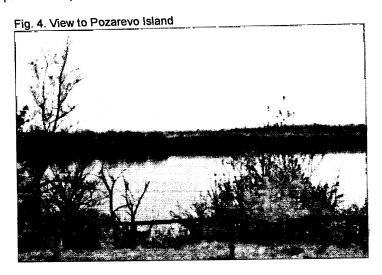


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The site BG0000237 Pozharevo Island was designated as avifauna protected area (SPA). According to the Standard Form Natura 2000 the site has the following characteristics:

situated in the region Silistra, municipalities Turtucaia, Pozharevo and Dunavets;

- area: 10 km2 (975.79 ha);
- located in the continental bio-geographic region;
- average altitude is 22 m (maximum 95 and minimum 12 m).
- it protects 40 species of birds of the Nature Directives



Site characteristics

The protected area Pozharevo Islands is situated on the Danube – from km 424 to km 423. It covered the Malko Pozharevo island and the east part of the Goliamo Pozharevo Island. The islands are covered by trees on 71 ha. The main habitat on the island is a typical riverine forest of willow Salix spp. and White Poplar Populus alba with rich undergrowth. Every year the Danube floods the island, most often in the period February-April.

Quality and importance

Pozharevo Island supports 69 bird species, 16 of which are listed in the Red Data Book for Bulgaria (1985). Of the birds occurring there 25 species are of European conservation concern (SPEC) (BirdLife International, 2004), 4 of them being listed in category SPEC 1 as globally threatened, 5 in SPEC 2 and 16 in SPEC 3 as species threatened in Europe. The area provides suitable habitats for 21 species, included in Annex 2 of the Biodiversity Act, which need special conservation measures, of which 19 are also listed in Annex I of the Birds Directive. Pozharevo island is of global importance as a breeding site for the globally threatened Pygmy Cormorant Phalacrocorax pygmeus. It hosts one of the five biggest mixed colonies of Night Heron Nycticorax nycticorax, Little Egret Egretta garzetta and Squacco Heron Ardeola ralloides in the country. In winter the island is regularly visited by two other globally threatened species - the Dalmatian Pelican Pelecanus crispus and the Redbreasted Goose Branta ruficollis. It is of international importance for several other wintering waterfowl species, especially Black-throated Diver Gavia arctica, Cormorant Phalacrocorax carbo, Smew Mergus albellus and Greylag Goose Anser anser, which form considerable concentrations there. Pozharevo Island is a roosting and feeding area for the White-tiled Eagle Haliaeetus albicilla.

Site designation

So far 7.4% of the area has legal protection according to national nature conservation legislation. There are two protected areas - the "Sya Kulak" Protected Area, which was

designated in 2003 to protect the typical landscapes, and the "Pozharevo Island" Protected Area, which was designated to protect the typical habitats for birds. In 1998, about 75% of the area is appointed as CORINE Site because of its European value for habitats, rare and threatened plant and animal species, including birds. In 1997, the area was appointed as Important Bird Area by BirdLife International. The proposed SPA borders are proposed Special Protection Area in Romania.

Anticipated impact:

As the site was designed for avifauna protection, the distance of 3.8 km is significant as that no negative impact is felt due to dredging in the Oltenita port area during the construction period.

During the exploitation period we consider that the measures imposed by the speed limit and sound signals near the site during the nesting period are enough.

So, the construction activities and the structures afferent the project shall not affect the ornitho-fauna and its habitats that are representative for the site.

We do not estimate a negative impact on the Site BG0000237 Pozharevo Island.

2. KOMPLEKS KALIMOK, COD BG0002030, SPA

The site is located at a distance of 1.7 km from the Oltenița Port (fig.5).

The site BG0002030 Komplex Kalimok was designated as avifauna protected area (SPA). According to the Standard Form Natura 2000 the site has the following characteristics:

- situated in the administrative region Severen tsentralen;
- area: 94 km2 (9429.2165 ha);
- located in the continental bio-geographic region;
- it protects 105 species of birds of the Nature Directives

Fig. no. 5. Location BG0002030 Kompleks Kalimok from the Oltenița Port.

Other Site Characteristics

Kalimok Complex includes a big former Danubian marsh, turned into fishponds, Bezimenen Island, covered with riverine forests and the section of the Danube bank between them. It is

located to the north of the village of Nova Cherna. In the 1950s the marsh was drained by the building of a dyke that separated it from the Danube and digging drainage canals. As the lands were not suitable for agriculture, fishponds were established there with their ponds divided by wet and swampy meadows in two parts: eastern and western. The ponds periodically dry up and the water level is maintained by pumping water from the Danube. For economic reasons the fishponds are currently abandoned. South of their eastern part the swampy meadows become a marshland. The main habitat is formed by the fishpond basins, the surface of which is almost entirely covered by marsh vegetation, dominated by Typha angustifolia, at places mixed with Typha latifolia, Typha laxmanii and Shoenoplectus lacustris. The pool fringes and the dykes are overgrown with reed Phragmites australis (Bondey 1991). The plants, prevailing in the open water areas are Hydrocharis morsusranae, Nymphaea alba, Nymphoides peltata, Trapa natans, etc. The banks of the draining canal are also overgrown with reedbeds, at places interspersed with willows Salix sp. The wet meadows are covered mainly by different acid grasses, their periphery with Phragmites australis, Shoenoplectus litoralis, etc. Between the river and the fishponds there is a periodically flooded riverine forest of willows Salix spp. and poplars Populus spp., with rich undergrowth and climbing plants, at places with small water pools. Bezimenen Island is entirely overgrown with riverine forests, mainly of White Willow Salix alba and White Poplar Populus alba.

Quality and importance

Kalimok Fishponds are one of the key places of international importance for waterfowl along the Danube. It supports 188 bird species, 61 of which are listed in the Red Data Book for Bulgaria (1985). Of the birds occurring there 85 species are of European conservation concern (SPEC) (BirdLife International, 2004), 9 of them being listed in category SPEC 1 as globally threatened, 18 in SPEC 2 and 58 in SPEC 3 as species threatened in Europe. The area provides suitable habitats for 71 species, included in Annex 2 of the Biodiversity Act. which need special conservation measures, of which 64 are listed also in Annex I of the Birds Directive. The fishponds are of global importance for the breeding Ferruginous Duck Aythya nyroca and a roosting place for the Dalmatian Pelican Pelecanus crispus. One of the two existing colonies of the Black-winged Stilt Himantopus himantopus along the Danube River is situated there. During the breeding season the Kalimok Complex is one of the most important sites in the country at European Union level for Ferruginous Duck, Night Heron Nycticorax nycticorax. Little Egret Egretta garzetta. Squacco Heron Ardeola ralloides. Bittem Botaurus stellaris, Spoonbill Platalea leucorodia, Black-winged Stilt, European Roller Coracias garrulus, as well as for three species of terns: Common Tern Sterna hirundo. Whiskered Tern Chlidonias hybridus and Black Tem Chlidonias niger. The complex is a constant breeding and feeding place for a pair of White-tailed Eagles Haliaeetus albicilla. During migration considerable numbers of White Storks Ciconia ciconia and Glossy Ibises Plegadis falcinellus concentrate in the region. In this period and in winter the fishponds are a site of global importance for the Pygmy Cormorant Phalacrocorax pygmeus and Greylag Goose Anser anser. They are an important site for wintering Fieldfare Turdus pilaris. In winter great quantities of waterflow concentrate there, including Red-breasted Goose Branta ruficollis, White-fronted Goose Anser albifrons, etc.

Site designation (optional)

About 63% of the territory of Kalimok Complex is under legal protection by the national law. The "Kalimok-Btushlen" Protected Area was designated in 2001 to protect the typical ecosystems and landscapes, as well as to protect the threatened plant and animal species. Small part of the area, about 8%, is appointed in 1998 as CORINE site because of its European value for habitats, rare and threatened plant and animal species, including birds. In 1989 the area was designated as Important Bird Area by BirdLife International. The proposed SPA borders a proposed Special Protection Area in Romania.

Anticipated impact:

As the site was designed for avifauna protection, the distance of 1.7 km is significant as that no negative impact is felt due to dredging in the Oltenita port area during the construction period.

During the exploitation period we consider that the measures imposed by the speed limit and sound signals near the site during the nesting period are enough. So, the construction activities and the structures afferent the project shall not affect the

ornitho-fauna and its habitats that are representative for the site.

We do not estimate a negative impact on the Site BG0002030 Kompleks Kalimok

3. BLATO MALAK PRESLAVETS, COD BG0002065, SPA

The site is located at a distance of 16.8 km from the Olteniţa Port (fig.6).
Fig. no. 6. Location BG0002065 Blato Malak Preslavets from the Oltenita Port.



The site BG0002065 Blato Malak Preslavets was designated as avifauna protected area (SPA).

According to the Standard Form Natura 2000 the site has the following characteristics:

- situated in the administrative region Severen tsentralen;
- area: 4 km2 (372.22 ha);
- located in the continental bio-geographic region;
- it protects 38 species of birds of the Nature Directives.

Other Site Characteristics

Malak Preslavets is located in north-eastern Bulgaria, 33 km to the west of Silistra, on the Danube riverbank, in the grounds of the village of Malak Preslavets. Its altitude is about 13 m. It is an eutrophic lake with constant water level, maintained by karst waters and rainfall. On its Danube side there is a dyke with a sluice. The water basin is about 4 m deep. Its banks are overgrown with reed *Phragmites australis* and the reed mace *Typha latifolia*, *T. angustifolia* and *T. laxmanii*. The open water surface is partly covered by floating vegetation dominated by *Nymphaea alba*. On the west and east of it there are low hills, covered by natural mixed broadleaved forests, dominated by Silver Lime *Tilia tomentosa*. They are about 50-60 years old and the tree stand is about 8-10 m high.

In spite of its small area the Malak Preslavets supports 56 bird species, 7 of which are listed in the Red Data Book for Bulgaria (1985). Of the birds occurring there 20 species are of European conservation concern (SPEC) (BirdLife International, 2004), 1 of them being listed in category SPEC 1 as globally threatened, 2 in SPEC 2 and 17 in SPEC 3 as species threatened in Europe. The area provides suitable habitats for 14 species, included in Annex 2 of the Biodiversity Act, which need special conservation measures, of which 13 are listed

also in Annex I of the Birds Directive. Because of its depth the lake is mainly open water, holding a substantial association of Water Lily Nymphaea alba, which is a good base for the species breeding there: the Whiskered Tem Chlidonias hybridus, the Moorhen Gallinula chloropus and the Coot Fulica atra. The reed belt around the lake is considerably smaller, with an extension only in the water mirror "tail". This is why the species breeding there are much less numerous than in the other wetlands in the region, which are dominated by reed. Malak Preslavets is one of the most important sites in the country on a European Union scale for the Whiskered Tem. The Little Bittern Ixobrychus minutus, the Ruddy Shelduck Tadorna ferruginea and the Levant Sparrowhawk Accipiter brevipes also breed there. Site designation (optional)

About 10% of the territory of Malak Preslavets is covered by the Protected Area "Malak Preslavets Marsh". In 2005 it was designated as Important Bird Area by BirdLife International. The proposed SPA borders a proposed Special Protection Area in Romania.

Anticipated impact:

As the site was designed for avifauna protection, the distance of 16.8 km is significant as that no negative impact is felt due to dredging in the Oltenita port area during the construction period.

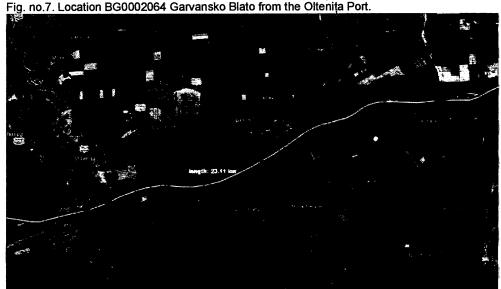
During the exploitation period we consider that the measures imposed by the speed limit and sound signals near the site during the nesting period are enough.

So, the construction activities and the structures afferent the project shall not affect the ornitho-fauna and its habitats that are representative for the site.

We do not estimate a negative impact on the Site BG0002065 Blato Malak Preslavets

4. GARVANSKO BLATO, COD BG0002064, SPA

The site is located at a distance of 23.1 km from the Oltenița Port (fig.7).



The site BG0002064 Garvansko Blato was designated as avifauna protected area (SPA). According to the Standard Form Natura 2000 the site has the following characteristics:

- situated in the administrative region Severen tsentralen;
- area: 3 km² (324.26 ha);

- located in the continental bio-geographic region;
- it protects 27 species of birds of the Nature Directives.

Other Site Characteristics

Garvansko Marsh is located in north-eastern Bulgaria, about 30 km to the west of Silistra, on the Danube bank, in the grounds of the villages of Garvan and Popina. It occupies an area flooded by the Danube in a relief declination between the villages mentioned above. In the past it used to be connected with the river. Nowadays there is a dyke in its northern part, which disturbs its natural water balance. Currently the marsh has an open water mirror with area 48.43 ha with water depth that not exceeds 0.7-0.8 m. Its banks are covered with hygrophyte vegetation: reed *Phragmites australis*, reed mace *Typha latifolia, Roppia palustris, Oenanthe aquatica, Scirpus* sp., *Potamogeton* sp., *Rannunculus aquatilis, Hydrocharis morsus-ranae*, etc.

Quality and importance

In spite of its small area the Garvansko marsh supports 26 bird species, 8 of which are listed in the Red Data Book for Bulgaria (1985). Of the birds occurring there 5 species are of European conservation concern (SPEC) (BirdLife International, 2004), 1 of them being listed in category SPEC 1 as globally threatened, 1 in SPEC 2 and 3 in SPEC 3 as species threatened in Europe. The area provides suitable habitats for 6 species, included in Annex 2 of the Biodiversity Act, which need special conservation measures, of which 3 are listed also in Annex I of the Birds Directive. The marsh is one of the most important sites in the country on European Union scale of the Ferruginous Duck Aythya nyroca that breeds there. Other waterbird species also breeds there in good numbers as the Red-necked Grebe Podiceps grisegena, the Little Bittern Ixobrychus minutus and the Black-winged Stilt Himantopus himantopus.

Site designation (optional)

Almost all territory of the Garvansko Marsh was designated as protected area in 1985 to protect the rare and threatened plant and waterbird species. It was designated as CORINE Site in 1998 because of its European value for rare and threatened plant and animal species, including birds. In 2005 it was designated also as Important Bird Area by BirdLife International.

Anticipated impact:

As the site was designed for avifauna protection, the distance of 23.1 km is significant as that no negative impact is felt due to dredging in the Oltenita port area during the construction period.

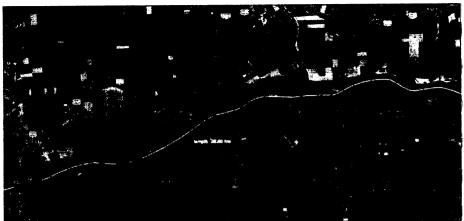
During the exploitation period we consider that the measures imposed by the speed limit and sound signals near the site during the nesting period are enough.

So, the construction activities and the structures afferent the project shall not affect the omitho-fauna and its habitats that are representative for the site.

We do not estimate a negative impact on the Site BG0002064 Garvansko Blato

5. OSTROV CHAYKA, COD BG0000534, SCI

The site is located at a distance of 40 km from the Olteniţa Port (fig.8). Fig. no. 8. location BG0000534 Ostrov Chayka from the Olteniţa Port.



The site BG0000534 Ostrov Chayka was designed as community importance site (SCI). According to the Standard Form Natura 2000 the site has the following characteristics:

- situated in the administrative region Severen tsentralen;
- area: 5 km2 (504.16 ha);
- located in the continental bio-geographic region;
- It protects 19 species of the Nature Directives and 2 habitat types of the Habitats Directive.

Other Site Characteristics

The site includes the Islands of Zapadna Chayka, Iztochna Chayka and Sredna Chayka. The main habitat classes are Bogs, Marshes, Water fringed vegetation, Fens (1%) and Broadleaved deciduous woodland (99%). Other characteristics include floodplain broad-leaved forests of Salix alba L., S. triandra L., with Populus nigra L., P. alba L., P. canescens Sm., P. euroamericana, Ulmus laevis Pall., Morus alba L., Fraxinus americana L., Acer negundo L. Quality and importance

The area is of high conservation value.

Site designation (optional)

To preserve natural forest of Salix alba, Ulmus minor, Populus nigra.

Anticipated impact:

As the site was designed for the protection of some types of fauna habitats and species, the distance of 40 km is significant so that no negative impact is felt due to the dredging works in the Oltenita port area during the construction period.

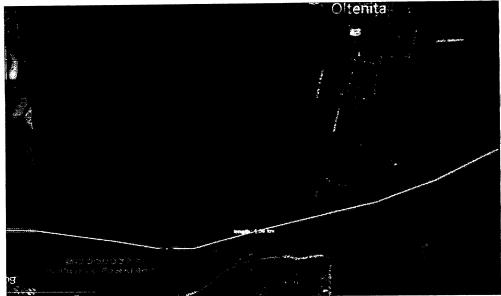
During the exploitation period we consider that the measures imposed by the speed limit and sound signals near the site during the nesting period are enough

So, the construction activities and the structures afferent the project shall not affect the omitho-fauna and its habitats that are representative for the site.

We do not estimate a negative impact on the Site BG0000534 Ostrov Chayka

6. KALIMOK-BRASHLEN, COD BG0000377, SCI

The site is located at a distance of 1.4 km from the Oltenita Port (fig.9). Fig. no. 9. Location BG0000377 Kalimok-Brashlen, from the Oltenita Port.



The site BG0000377 Kalimok-Brashlen was designed as community importance site (SCI). According to the Standard Form Natura 2000 the site has the following characteristics:

- situated in the administrative region Severen tsentralen;
- area: 76 km2 (7550.18 ha);
- located in the continental bio-geographic region;
- it protects 121 species of the Nature Directives and 9 habitat types of the Habitats Directive.

Other Site Characteristics

The site is part of former Danube floodplain and includes marshes, water bodies and islands. The dominant vegetation belongs to *Populus* sp. and *Salix* sp. Anthropologically influenced clear cutting of floodplain forest and heir conversion into intensive poplar plantations, dicing of Danube, draining of marshes or converting into fishponds, draining of lands and converting into arable lands.

Quality and importance

One of the stepping stone sites along Danube River. Big potential for restoration of former flood plane.

Anticipated impact:

As the site was designed for the protection of some types of fauna habitats and species, the distance of 1.4 km is significant so that no negative impact is felt due to the dredging works in the Oltenita port area during the construction period, the more the site is located upstream the Danube compared to Oltenita Port.

During the exploitation, the negative impact is null.

So, the construction activities and the structures afferent the project shall not affect the omitho-fauna and its habitats that are representative for the site.

We do not estimate a negative impact on the Site BG0000377 Kalimok-Brashlen

7. POZHAREVO-GARVAN, COD BG0000530, SCI

The site is located at a distance of 3.6 km from the Oltenita Port (fig.10). Fig. no. 10. Location BG0000530 Pozharevo-Garvan from the Oltenita Port.



The site BG0000530 Pozharevo-Garvan was designed as community importance site (SCI). According to the Standard Form Natura 2000 the site has the following characteristics:

- situated in the administrative region Severen tsentralen;
- area: 63 km2 (6304.9234 ha);
- located in the continental bio-geographic region;
- It protects 98 species of the Nature Directives and 119 habitat types of the Habitats Directive.

Other Site Characteristics

Wetland, pastures, willow forests, arable lands, gardens and vineyards. Nature Monument (1985) by the Protected Areas Act. Freshwater marsh near the Danube river, situated on the riverbank. The swamp is located in an agricultural region near the village of Garvan.

Quality and importance

Shallow fen, located along the Danube River. Zoological (Important Bird Area - IBA) and botanical importance. Important for the exsistance of invertebrate fauna. Garvan marsh is important for place for bird, plant, reptile and anphibian species (Bombina bombina, Triturus vulgaris, Hyla arborea, Pelobates fuscus, Rana esculenta).

Anticipated impact:

As the site was designed for the protection of some types of fauna habitats and species, the distance of 3.6 km is significant so that no negative impact is felt due to the dredging works in the Oltenita port area during the construction period.

During the exploitation period we consider that the measures imposed by the speed limit and sound signals near the site during the nesting period are enough.

So, the construction activities and the structures afferent the project shall not affect the ornitho-fauna and its habitats that are representative for the site.

We do not estimate a negative impact.

As a conclusion, the implementation of the project "The Argeş and Dâmboviţa Rivers use planning for navigation and other uses" shall bring no changes or negative evolution on none of the following sites Natura 2000 on the Bulgarian territory:

- 1. Pozharevo Island, cod BG0000237;
- 2. Kompleks Kalimok, cod BG0002030;
- 3. Blato Malak Preslavets, cod BG0002065;
- 4. Garvansko Blato, cod BG0002064;
- 5. Ostrov Chayka, cod BG0000534;
- 6. Kalimok-Brashlen, cod BG0000377;
- 7. Pozharevo-Garvan, cod BG0000530;

As a result of applying the measures for reducing the impact regarding the water, air pollution, the noise level, any possible negative impact shall be eliminated.

Generally, we do not estimate a negative impact on the sites Natura 2000 on the Territory of Bulgaria, shown above.

Dr. Biologist Cristina GLIGOR

Dipl. Eng. Valeria-Nicoleta GATU