Environment and Security

international initiative

Ministry for Natural Resources and Environmental Protection of the Republic of Belarus

State Committee of Ukraine for Water Resource Management

REPORT SUMMARY

Field study of the Beloozerskaya water-feed system of the Dnieper-Buh Canal

carried out on June 30 - July 6, 2008
in the framework of a project
“Improved management of shared water resources
in the upper Pripyat basin”

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Contents of a full Russian version of the report

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Executive summary

Part of the flow from the upper Pripyat river is diverted through the Vyzhevskiy floodgate located in Ukraine in order to provide water for the Dnieper-Buh Canal in Belarus. As a result, during low-water periods, the amount of water remaining in the river itself is insufficient for maintaining its natural ecological balance. Therefore management of water withdrawal regime from upper Pripyat is a transboundary problem. In order to address transboundary issues in the upper Pripyat basin, in particular, those associated with diverting water to the Beloozerskaya water-feeding system of the Dnieper-Buh Canal, the existing system of upper Pripyat water resource management needs to be improved.

From this point of view, the priority objective is an environmentally safe allocation of the Pripyat's flow through the Vyzhevskiy floodgate of the Beloozerskaya water-feed system. More effective management of water diversion regime will help considerably reduce associated adverse environmental impacts, including change and degradation of the Pripyat's bed downstream of the floodgate, possible deterioration of water quality at this section, and disturbance to the hydroecological regime of Svyatoye, Volyanskoye, and Beloye lakes. The ultimate objective of the project implemented within the framework of the international Environment and Security Initiative (ENVSEC) is the development of a sustainable system for effective water resource management in the upper Pripyat basin, agreed among the countries and the responsible agencies. Project results are intended for use by respective agencies and water resource users of Belarus (Ministry for Transport and Communications, Ministry for Natural Resources and Environmental Protection, "Dnieper-Buh Waterway" Operation and Construction Enterprise) and Ukraine (State Committee for Water Resource Management, Volyn and Rivne Regional Departments for Water Resource Management, Ministry for Environmental Protection). The project is funded by the Governments of Norway and Canada.

To support this objective, a joint Belarus-Ukrainian hydrological and hydroecological field study of the upper Pripyat river and the Beloozerskaya water-feed system were carried out in June–July 2008. Results of the studies are presented in this report, and will be further useds for: calculating detailed water balances; estimating anthropogenic load for various hydrological conditions and various Vyzhevskiy floodgate operating regimes; developing Operating Rules for the Beloozerskaya water-feed system of the Dnieper-Buh Canal, and agreeing upon them with the stakeholders taking into account legal aspects associated with ownership rights, land and water management, as well as information exchange practices.

Key results of the 2008 field study include:

- results of hydrometric works aimed at leveling and referencing of a river gauge, which prove serious subsidence of the floodgate structures and the need for its large-scale urgent repair;

- new results of hydrometric and hydrological survey of the upper Pripyat and water bodies of the Beloozerskaya water-feed system, and preliminary calculations based on these results;

- results of hydrobiological and hydrochemical survey of the upper Pripyat and water bodies of the Beloozerskaya water-feed system, and preliminary recommendations on integrating environmental aspects into planning of flow allocation;

- further defined and fine-tuned action priorities for development of Operating Rules for the Beloozerskaya water-feed system of the Dnieper-Buh Canal and coordinating this development among the stakeholders.

Main conclusions and recommendations of the field study

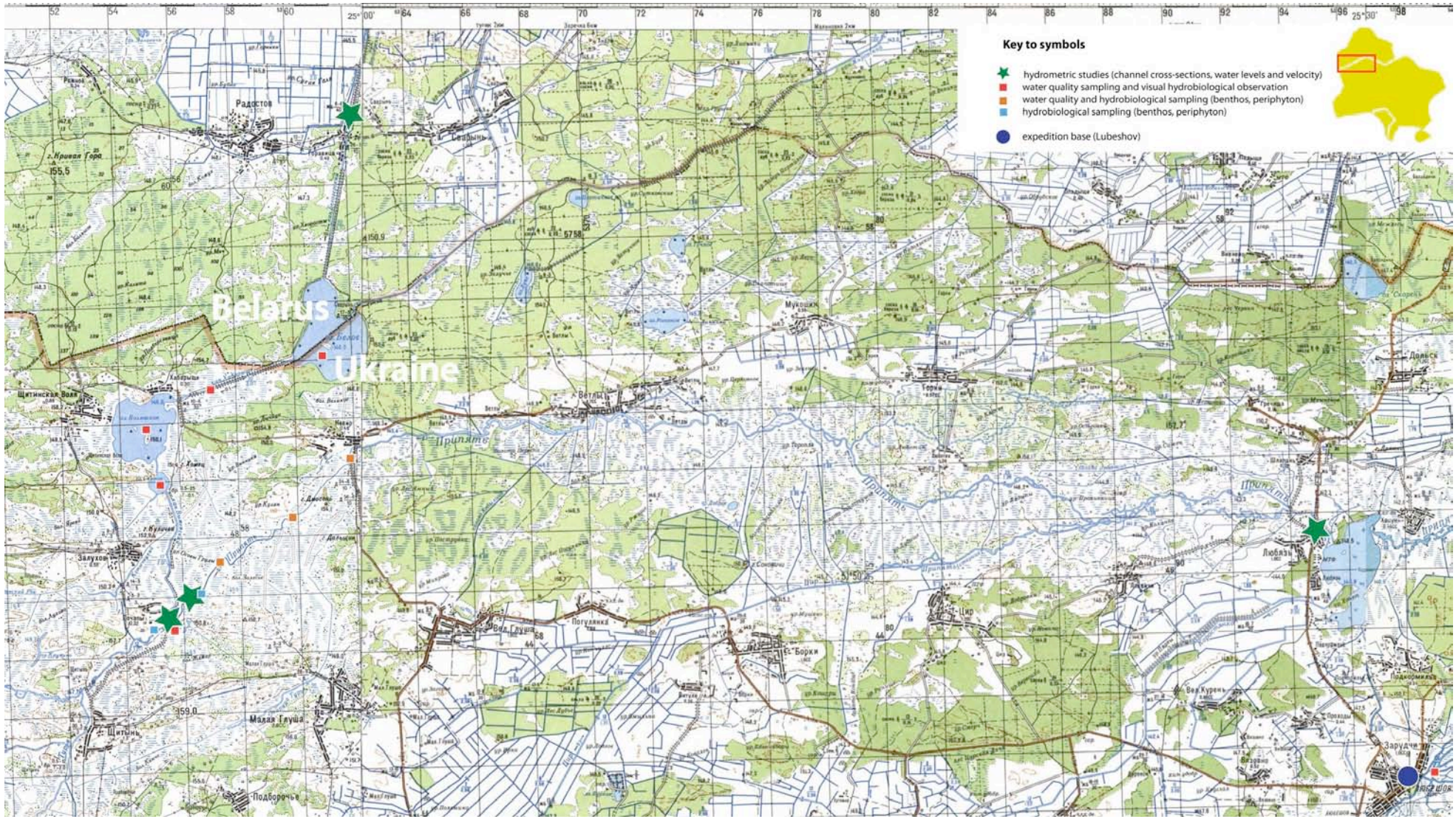
1. Hydrometric works aimed at leveling and referencing of a river gauge carried out at the Vyzhevskiy floodgate of the Beloozerskaya water-feed system proved serious subsidence of the floodgate structures, as well as a deformation of connecting elements of the structure (beam joints). The rate of subsidence and deformation has become particularly threatening in the last 9 months before the study (September 2007 – July 2008). According to the field study results, subsidence of the floodgate structures reached 4 cm. Urgent intervention is required to prevent serious environmental and humanitarian damage in case of the structure's likely failure under high-flow conditions.

2. Under water discharge conditions on the day of measurement upstream of the floodgate (3.8 m^3/s), and four stop-logs in place at the Vyzhevskiy floodgate, the actual flow allocation was estimated as follows: 78% of the overall flow (2.95 m^3/s) to the Beloozerskaya water-feed system; 22% of the overall flow (0.83 m^3/s) to Pripyat downstream of the floodgate.

3. Assessment of the general environmental condition of the Pripyat river, as well as watercourses and water bodies of the Beloozerskaya water-feed system showed that they are generally in a satisfactory state. No significant anthropogenic pollution was found at the sections studied. The expedition observed intense overgrowth of higher aquatic plants and changes in zoobenthic cenoses of the upper Pripyat as a result of an altered hydrological regime such as reduced water discharge and flow velocity, increased water temperature, and altered substrate. In the future actions are advisable for optimizing morphometric parameters of the upper Pripyat bed in order to maintain a river-type flow, i.a. taking into account the protected status of the area.

4. To elaborate informed recommendations regarding the allocation of the Pripyat flow, hydrological and water balances need to be calculated for the Pripyat at the Pochapy observation point (upstream of the floodgate) based on hydrological data for the Pripyat (Rechitsa and Lubyaz gauging stations) and Turia (Kovel and Buzaki gauging stations) rivers. In order to identify operational conditions optimal for the upper Pripyat ecosystem downstream of the Vyzhevskiy floodgate, a study of a relationship between water discharge and velocity regime at this section is required, with a subsequent identification of an environmentally acceptable discharge range.

5. A more accurate calculation is required of a relationship between water discharge and water level at the floodgate for spring high-water conditions (at levels when the river water is about to enter the floodplain). It is also recommended to carry out measurements at the Pripyat river downstream of the floodgate. In order to carry out these works, a field study is planned for spring 2009.



Synthesis map of ENVSEC field study of the upper Pripyat in June-July 2008