WSCS Statement regarding the Siarzewo Dam and Hydropower Project on Vistula River, Poland

addressing the Ministry of Climate and Environment of the Republic of Poland

The World Sturgeon Conservation Society herewith would like to draw your kind attention to an environmental threat that is building up in the lower reach of the Vistula River. This river is an extremely valuable resource not only for Poland but for the entire Baltic Sea region due to its dimensions and its role for the southern Baltic migratory fish populations.

The World Sturgeon Conservation Society (WSCS) is a non-profit association established in 2003. The membership of WSCS is global and includes scientists from various disciplines as well as regulators, administrators, planners, practitioners in fisheries and aquaculture as well , and conservationists. It acts as an international forum for scientific exchange and cooperation. Referring to the information presently accessible to WSCS, the Board of Directors would like to reiterate some aspects of the ongoing development of the 'Construction of a barrage on the Vistula River downstream Włocławek' no. 124/2017 reference no WOO.4233.3.2016.KŚ.29 of 29 December 2017, near Siarzewo, and wishes to draw your attention to the anticipated consequences.

- Recognizing that Poland is planning to construct a dam and hydropower facility on Vistula River, one of Central Europe's least impacted large rivers, 36 km below the only lower reach mainstem dam interrupting fish migration below Krakow, at Włocławek near Siarzewo;
- Reiterating that the existing dam constructed in the 1970s has resulted in the extirpation of the endemic salmon and seatrout populations that utilized the Upper Vistula and the San River as main spawning grounds, has largely reduced the Vimba populations and has destroyed the connectivity between the Upper and the Lower Vistula;
- Bringing to notice that over the past 30 years, significant efforts have been carried out to improve the river fauna, the hydromorphology and the floodplain connection in an attempt to improve connectivity and ecological status in accordance with the Water Framework Directive, which attempts to mediate the effects of past interventions;
- Reiterating that large scale floodplain management projects have been conceptualized in an attempt to improve the natural retention capacity for groundwater and thus support

the recovery of biodiversity in the river floodplain utilizing the natural discharge pattern of the river that is altered by the retention of the dams;

- Drawing attention to the fact that, salmon and seatrout restoration projects have been started as early as the 1980s in order to protect and restore their populations in the Vistula catchment;
- Reiterating that by 2007 the recovery of the Baltic sturgeon – being listed under Annex II and IV of the Flora Fauna Habitat Directive (43 EWG 96)- has been initiated and has been commenced since then with the establishment of an ex situ broodstock, mass releases , and recovery measures to improve the habitat for the species as well as the awareness and compliance of stakeholders;
- Bringing to notice that the river section that is covered by the planned reservoir comprises the only sturgeon spawning habitats in the lower Vistula River which thus would be rendered dysfunctional by the construction of the dam;
- Reiterating the fact that Poland is responsible to fulfill the obligations arising from the European legal framework for the protection of species and their habitats (Natura 2000), meet the targets of the Water Framework Directive, and fulfill the agreed upon Biodiversity targets.

Furthermore, Poland, as member of the Helsinki Commission, has adopted the Baltic Sea Sturgeon Action Plan (BSSAP) which under Action 8 requests that key areas of critical importance for the population development are identified and the potential conflicts with other uses are determined, the mediation of user - conflicts are carried out to develop adaptive use of habitat features, and self - sustaining habitats and habitats providing key functions with the need for restoration are undergoing a protection process. While under Action 10 it is agreed that the signatory states are to establish legal prerequisites for future dam development including the prerequisite of a minimum bypass of 30 % of the discharge at all times and implement the strategy to improve effective connectivity throughout all planning processes.

The planned construction violates the habitat protection and restoration targets of the BSSAP and it fails to meet the 30% discharge bypass limit as a vital prerequisite to maintain fish migrations through side channel habitats as outlined in the BSSAP (2019). As fish migration on Vistula River is impaired by the Włocławek dam already, the fish migration facilitation as well as the protection of essential habitats must have absolute priority for the Siarzewo dam. Reduced or delayed fish migration by ineffective migration facilitation structures causes a mismatch of the upstream fish migration and the subsequent reproduction with the required environmental stimuli and thus reduces or prevents its effectiveness. This effect accumulates with the increasing number of dams on a given river.

While the details for the technical passage facility are completely unknown with respect to the dimensions and construction details of its slots and troughs, its position in the dam, the location of its entrance in relation to the dam and the embedding in the hydrology downstream of the dam as a principal factor for fish finding its entrance, the functionality cannot be assessed at this stage of the planning process. But considering the fact that the dam will maintain a water level difference

of 10 m, the max height difference between slots is 12 cm and the length of the chambers (Troughs) is 9 m, the structure would have to be 80 chambers times 9 meters equaling 720m. For a river as wide and with a discharge of Vistula preferably two passage facilities should be established – one facility on each river bank.

The suggested solution for the fish migration facility through a bypass channel will prove ineffective for migratory fish and might at best serve as alternative habitat since its location, the point of entry below the dam, the location on the inner river bend will all contribute to the fact that the passage facility cannot be located by migrating fish and will thus not result in the required suitability for all sizes of all fish species that are to pass the obstacle. As a result, migrating fish will be delayed massively if ever they find the bypass and if they accept it as an alternative route to the mainstem. This devastating effect accumulates in combination with the Włocławek Dam passage facility effectively reducing the low numbers of migrating fish to insignificant amounts.

Even the best constructed semi natural channel passage does not solve the problem of changing the entire character of the river in the upstream section of the dam where it is changing the river ecosystem of the into a lake type, with a significantly lower flow velocity, fine sediments (instead of a gravel and sand bottom), elevated water temperatures than in the river, and an altered benthic invertebrate community than in the river. As a result, upstream of the dam, the spawning habitat for rheophilic fish species such as salmon, seatrout, sturgeon etc. will be lost due to the stagnant water body preventing the hydromorphological processes to maintain their characteristics, which in turn will result in a further decline in the population of vimba, salmon and sea trout.

Since recent work has shown that the only spawning habitat for Baltic sturgeon in Vistula River below Włocławek Dam is located in the reservoir are of the planned dam, these habitats will inevitably be lost, putting the restoration targets at risk an thus constituting an infringement of the Natura 2000 targets.

For downstream migration, the reservoir creates a substantial ecological and behaviour barrier for juveniles of migratory fish species by impaired orientation due to a lack of current, increased predation through an altered fish community, increased energy expenditure through the increased water temperatures, and finally the impact of the turbine passage resulting in mechanical injuries through blade trike and pressure drop if no sufficient bypass technology is applied. The latter could be implemented by fine (<1cm) horizontal rakes, positioned diagonally in the river and directing fish to bypass structures. These are not foreseen in the available technical specifications available to us. For large downstream migrating fish, turbine passage is lethal above an average size of 40-60 cm depending upon the turbine size, rotation speed and number of blades. For sturgeons, being more than 1.5 m at minimum when migrating to spawn, the dams are a deadly trap which is violating the animal protection las of the EU and its member states.

In the light of the massive damage to fish populations as well as to the hydrology of the Lower Vistula that the new dam is predicted to cause, we strongly suggest to revise the current plans.

Vistula River is a precious ecological asset not only for Poland but for the entire Baltic Sea region and this must not be put at any further risk for short term considerations. We therefore urge the Polish government to reconsider their plans and to revise the development of the Vistula valley for the benefit of future generations.

In order to establish a planning process that is in conformity with the Green Deal targets of the EU and that supports the fulfillment of the Biodiversity targets, the WFD and the Natura 2000 obligations, an open consultation process is required which provides the opportunity for an open outcome which represents the best sustainable solution prioritizing ecological functions above short term economic interests.

We strongly encourage your consideration of the points we have raised regarding the permitting process for the dam and the effects the dam will cause and remain

Sincerely,

The WSCS Board of Directors