

IMPROVING STURGEON HABITATS IN THE RIVERS OF AZERBAIJAN

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The rivers of Azerbaijan are the preferred spawning grounds for the valuable sturgeon fish of the Caspian Sea, which contains over 90% of the world's sturgeon population. European sturgeon and Russian sturgeon are the most valuable representatives and only source for black caviar. These species migrate to the downstream part of the Kura River to spawn. Intensive water withdrawals in many rivers of the region have led to significant changes in habitats of sturgeons. Improvement of habitats of sturgeons requires holistic approach and contribution of all sides. So far, these types of holistic approaches have not been used. Therefore, have involved all the responsible sides to solution of the problem.

Because the young fish species provide future existence for the sturgeon populations, their protection is essential to maintaining sustainable development in the Caspian region. Making a pilot project, we believe that many parties will be interested to implement similar actions in the region. We believe that this project will be the good case for national and regional institutions to carry out similar projects.

Through the history, sturgeon was the main source of food and income for the local communities. Therefore, local communities are very interested to improve situation around sturgeons. Therefore, we involved local communities to this project as well. Because the local communities are the main water users, we believe they are interested to establish similar devices on their withdrawal pipes. To achieve this, we conducted broad awareness activities. The proposed project intends partially and, in the future completely to solve one of the main issues that concern Caspian sturgeons.

However, setting of environmental flows is not a complete task. In many places along the rivers farmers use big pumping pipes that suck young fishes into the irrigation fields. This causes direct death for all the fishes sucked by pipes. Our second idea was to establish on the inlets of withdrawal pipes special equipment that will prevent young fish to enter into pipes. We developed special equipment that will be constructed on inlets of water pumping pipes.

Construction of these devices will considerably improve habitat conditions for sturgeon populations in the Caspian Sea.

Fig. 1. Comparison of observed and environmental flows

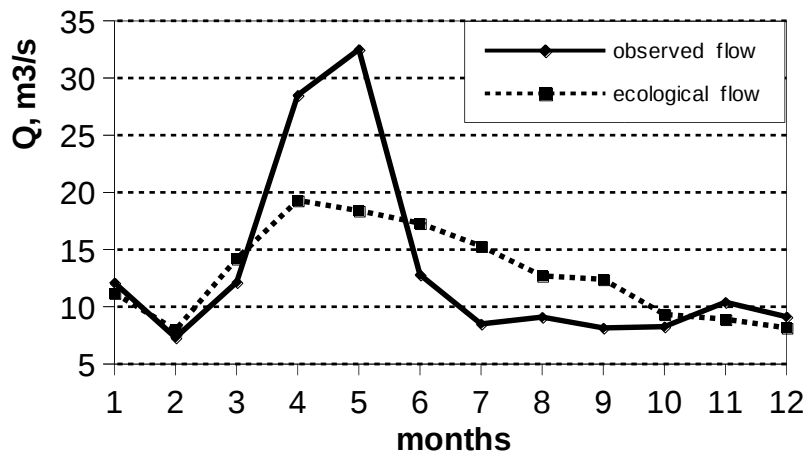


Fig. 2. Launching fish protecting device.

Simultaneously, in 2013 we started to study habitat issues of sturgeons with the new methodology that enables to assess vulnerability of small streams. In 2014 author started to study ecosystem services of small streams. The study confirmed that economic losses from loss of sturgeon habitats are huge. The strangest issue is that sturgeons are gradually being forgotten by the responsible parties. Some experts consider that it is "too late" to restore sturgeon habitats in small streams. However, these problems are related to poor management in the basins of these rivers. Therefore, author considers that using holistic approach to the watershed management it is possible to save sturgeons.

Our idea includes construction of small scale fish ladders that make connection between downstream and upstream parts dams. These fish ladders will be safe corridors for passing sturgeons from downstream to upstream. For this purpose, we are going to take four small streams in a Central Azerbaijan,

which directly flow into the Caspian Sea. These fish passages include small scale migration routes, where full hydraulic head for migrating fish will be provided. It should be noted that construction of fish ladders is a first effort not only in Azerbaijan, but also in all Caspian countries.

Fig. 3. Study of potential earth-based fish passages



The project sites are located in the central part of Azerbaijan, where small rivers flow into the Caspian Sea. Four small dams are taken as a pilot sites for the project. This is the region where small rivers and the Caspian Sea comprise unit ecosystem. Four fish ladders have been constructed in places, where natural circumstances for sturgeons moving upstream does not exist. Also, we mobilized local farmers to use our previously developed fish protection devices. In order to promote fish protection devices, we involved local irrigation departments and Water Users Associations (WUA) into the project. WUAs will help us to build relationships with local owners of water withdrawal sites.

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