**Project:** HYDROMATRIX®- MODULE IN AN EXISTING DAM STRUCTURE - PART 4
FULL BAY TESTS (scale 1:40)

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**Client:** VA TECH HYDRO GmbH & Co

**Objectives:**
- Identification of detrimental turbine inflow conditions
- Improvement of approaching flow conditions
- Definition of turbine operational cases

**Abstract**

This investigation performed at the Institute of Hydraulic Engineering continues a test series (six-pack and pier model) on a possible HYDROMATRIX®-module installation in a 30 year old dam on the Ohio River, USA, where similar locks and dams exist. In order to substantiate the hydraulic behavior of the HYDROMATRIX®-turbines a full model was built to a scale of 1: 40 to appraise the turbine inflow and outflow conditions during various operational cases. The full-model was built in a tilting flume of the Hydraulic Laboratory and consists of one full bay and two adjoining half bays at both sides. The tests should identify detrimental disturbances and vortices in the approaching turbine flow. Furthermore, various inflow conditions, such as one single module in operation, all units in operation and so far were investigated numerically as well. Special emphasis has been given to the boundary units closed to the piers and to turbine units shut down.

**Bay model tests of a HYDROMATRIX®-Module**

*Physical and numerical investigations of different approaching flow conditions*

**References:**
