



# Physical model testing of civil engineering structures adds confidence to design

BHR Group has a large and dedicated test facility to study the flow behaviour through civil engineering structures. Plant design is optimised and performance verified to international standards by a multi-discipline team of specialist engineers.

## Specialist Knowledge

- Inlet works
- Pumping stations
- Unit processes
- Intakes & outfall structures
- Submerged intakes
- River hydraulics & training works
- River & canal structures
- Sluices
- Barrages
- Dams
- Shipping locks and gates

Models cost little compared to overall scheme construction costs and consequential costs of failures. Undertaken early in the product cycle, model studies lead to greater hydraulic efficiency, improved safety and reliability and lower construction costs.

## Benefits

- Functionally demonstrated design
- Development and testing of modification to ensure adverse flow conditions avoided
- Ability to compare options
- Performance observations over full operating conditions
- Cost effective assurance of final design





## Design Verification

Model tests are of value both for design purposes and as a convenient means of verifying specified performance. Undesirable flow phenomena can arise in complex or non-standard designs and physical modelling may be necessary to predict the effects with certainty.

Using the appropriate tools and scaling laws, physical models can be used to measure and assess flow distribution, velocity and pressure variations, flow patterns, sediment deposition, scour and air entrainment.

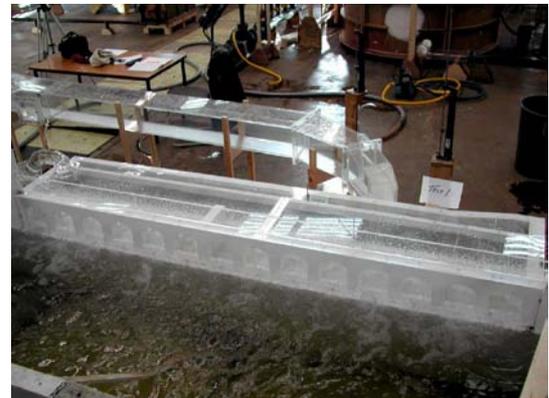


## Leading Expertise

With over 60 years experience in flow modelling, BHR Group delivers independent, state-of-the-art knowledge and solutions to complex hydraulic problems.

Throughout the operating life of a structure performance requirements may change and for a major structure, investigation is frequently required after construction (sometimes many years later). Model studies enable performance to be investigated without taking the structure out of commission and options to be assessed without the cost of trial and error.

While current problems and issues are being investigated, the potential for future change can also be assessed and problems identified by subjecting the model to parameters such as flow rate or level beyond current values.



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