hydraulics laboratory

nhc

northwest hydraulic consultants

water resource specialists

hydraulics laboratory

NHC's physical modeling professionals have assisted clients around the world in the development of innovative solutions to complex hydraulic problems. Physical hydraulic modeling is a hands-on, practical approach to developing effective engineering designs and conducting applied hydraulic research. Through an interactive and collaborative physical modeling approach, our clients are able to take part in the design process, which gives them confidence in the future performance of their projects. This up-front collaboration often results in significant construction and operation cost savings, as well as expedited project schedules.

Our success in physical hydraulic modeling is attributed to the capabilities and extensive experience of our senior modeling specialists, our ability to develop innovative solutions to complex hydraulic problems using modeling as a design-aid tool, and our commitment to continually improve the technology used in our modeling operations. Applied research performed in our laboratories has led to the development of innovations in hydraulic structure design, improved techniques for analyzing fluid behavior, and the development of laboratory technologies that increase the value of modeling as a design and analytical tool.

We have earned a reputation for excellence through our work on a broad range of project types throughout North America and around the world, including dams and reservoirs, power generation, water supply and water treatment, municipal infrastructure, river processes, fish passage, natural hazards, and coastal developments.

Services

NHC has successfully completed hundreds of physical model studies since our inception in 1972, providing the following services:

- Development, refinement, and verification of hydraulic designs
- Witness testing and demonstrations for project stakeholders
- Hydraulic performance rating
- Simulation of hydraulic structures and natural systems
- Experimental research and development of hydraulic devices and processes

With NHC's in-house expertise in related areas, such as advanced numerical modeling, field data collection services, hydrology, sedimentation, and hydraulic design, we are able to provide our clients with integrated solutions for their water resource projects.

Resources

NHC physical modeling personnel include individuals with over 40 years of physical modeling experience gained in academia, government service, and private practice. They are supported by a team of engineers and technicians who have extensive experience with the design, construction, operation, and testing of hydraulic models with a wide range of application. We have extensive experience in and specialized facilities for the construction and testing of large river models, including those with mobile boundaries.

Our laboratories include fully-equipped workshops for model fabrication, electronics and instrumentation shops for development of model control and data acquisition systems, and towing tanks for velocity-probe calibration. Instrumentation includes 1-D, 2-D, and 3-D velocity probes, video-imaging systems for detailed characterization of flow fields, capacitance water-level probes, point gages, electronic water-level probes and bed profilers, accelerometers, TDG meters, fluorometers, anemometers and computers for model control and data acquisition and processing.

Project Experience

Descriptions of representative NHC projects are available on our website at www.nhcweb.com. Additional project descriptions and client references can be provided upon request.

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