

Recreational Hydraulics

Values

Many major cities and communities worldwide are revitalizing their river corridors for recreation. In many cases, replacing dangerous hydraulic structures with naturalized “whitewater parks” has provided many public benefits. Although usually designed for canoeing and kayaking, “playwave” features are fun for swimming, wading, and viewing, and also provide fish passage.

Services

NHC provides technical support to develop whitewater parks from concept to completion. A phased step-by-step approach improves cost-effectiveness and allows for client participation in planning, design, and construction.

OUR SERVICES INCLUDE:

- **Assessing site potential for whitewater parks (pre-feasibility evaluation)**
- **Hydraulic assessment and preliminary design (feasibility assessment)**
- **Assistance with approvals, permitting, and public interaction**
- **Physical modeling, numerical modeling, and detailed design**
- **Construction assistance and supervision**
- **Post-construction evaluations of performance and safety**



Technical Approach and Capabilities

NHC evaluates each project to determine the appropriate modeling methods and techniques. Hybrid approaches using numerical modeling and in-house physical (scale) modeling can often provide a cost-effective method to develop and compare alternative solutions.

NHC often uses physical modeling to develop and refine the selected design, to recognize clients’ and the public’s sensitivity to whitewater and playwave features. This approach avoids a common problem where design changes are required following post-construction evaluations. Our main goal is to get it right the first time.



Experience

NHC has modeled and designed whitewater parks and playwave features for seven years. Our clients include government agencies, private industry, general consulting engineers, and recreational organizations. Our experience spans a wide range of structures, hydraulic conditions, and project objectives. Examples include:

▪ Structure Modification

Modeling, design, construction supervision, and post-construction evaluations for Bow River Weir Project in Calgary, Canada, the world's largest whitewater park.



*Physical modeling of
Calgary Bow River Weir Project*

▪ Urban Revitalization

Pre-feasibility and design feasibility studies to develop a whitewater park in downtown Kongsberg, Norway; detailed design through physical modeling.



*Post-construction evaluations
Calgary, Canada*

▪ Recreation at Hydropower Projects

Evaluating the potential for maintaining or providing new recreation uses at many hydroelectric generating sites and facilities.



*Design feasibility study and
physical modeling,
Kongsberg, Norway*

▪ Design Assistance

Many projects that combine habitat restoration with flood management, recreation, channel stabilization, infrastructure development, and other objectives.



*Advisory Assistance for London
2012 Olympic whitewater course
London, England*

Benefits

Our services provide the means to successfully design whitewater parks and avoid the need for costly post-construction changes. A step-by-step approach to projects with thorough hydraulic analysis and design results in high-quality playwave features that can be enjoyed by diverse user groups. As a result, many communities are realizing positive social and economic benefits from local whitewater parks.

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