

## Workshop - Hydraulic Design of Stepped Spillways

Monday 27<sup>th</sup> June 2016

### Presenters:

Hubert CHANSON and Sherry HUNT

This course has been developed to focus on the needs of practitioners. Dams and reservoirs are commonly equipped with a spillway system designed to safely spill flood waters and dissipate the turbulent kinetic energy before it rejoins the natural river course. The construction of steps on a spillway chute assists with energy dissipation, thus reducing the size of the downstream stilling structure. Construction is also compatible with roller compacted concrete dams, embankment armoring, and gabion structures.



The key features of stepped spillway flows are the different flow regimes dependent upon the relative discharge, high turbulence levels, and intense flow aeration. Modern stepped spillways may have moderate to steep slopes and can accommodate large unit discharges. Because flow patterns of stepped spillways differ significantly from those on smooth chutes, designers must carefully analyze stepped chutes as their hydraulic design is far from trivial. An overview of the Workshop Program follows:



### Workshop Program

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|---|------------------------------|
| 1. Introduction and Overview of Prototype Designs | Hubert CHANSON               |
| 2. Hydrodynamics of Stepped Spillways             | Hubert CHANSON               |
| 3. Recent Applied Research                        | Sherry HUNT                  |
| 4. Operational Record of Stepped Spillways        | Hubert CHANSON & Sherry HUNT |

### Key Takeaways from this Course

- Practice-oriented hydraulic characteristics (flow regimes, aeration, energy dissipation, turbulence, instabilities) are defined
- Stepped spillways, applicable site settings and hydraulic demands, and common design applications are introduced
- Recent research findings and published design methodologies are provided
- How-to examples that showcase design solutions responsive to site and operational constraints are presented
- Field Observations and Performance Records are presented to provide relevance to design approaches

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