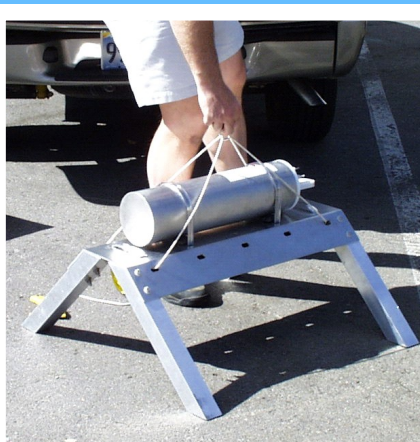




PROJECT DESCRIPTION

A technical memorandum was prepared under contract to the Canadian Coast Guard that outlines procedures and equipment recommendations for wake measurements with particular reference to the measurement of the wakes generated by ship traffic in the St. Lawrence River downstream of Montreal. The study covered subjects ranging from measurement criteria to equipment recommendations and data analysis.

PROJECT APPROACH

To measure wake and drawdown effectively, one needs to record both the spatial and temporal characteristics of the wake/drawdown event. The time series characteristics should be measured in terms of the water free surface elevation, hydrodynamic pressures and/or velocities. The spatial characteristics include the direction of propagation of the wake, the pattern of the wake and the transformation of the wake with distance from the vessel (radiation and dispersion), as well as with proximity to the shore (refraction, diffraction, shoaling and breaking effects).

The program designed for the Canadian Coast Guard addressed the following issues:

- ambient conditions;
- ship characteristics;
- sailing conditions;
- video and still photography;
- correlation of ship passages and wake measurements;
- measurement locations;
- instrumentation (frequency response, sampling rate, calibration, installation, validation and synchronization);
- data conversion, and;
- bathymetric profiling (nearshore)

Instrumentation recommendations and specifications were determined for capacitance wave gauges, pressure transducers, and ADCP current meters. The design of the field program has also included assessment of background data of vessel traffic and schedules.

CLIENT

Canadian Coast Guard
Quebec Region

LOCATION

St. Lawrence River, QC

DATE

2004