



# CH2MHILL

## Applied Sciences Laboratory

### Case Study

## Great Lakes Cargo Ship Sampling Program



*Loading limestone into the holds of a Great Lakes cargo vessel.*



*Loose material from a cargo vessel drainage sump.*

Tons of ore, limestone, and coal are shipped throughout the Great Lakes region on a daily basis. These products are both mined and used by industries along the lake shores. Transporting the tons of material by cargo vessel is more economical than shipping by rail. Some of these vessels are over 1000 feet long, and are considered the "super tankers" of the Great Lakes. The ships operate 24 hours a day, stopping in ports only long enough to load or unload their cargo. Once they set sail, crews clean the decks of dust and loose ore, coal, or limestone using large pressurized hoses. The holds are also sprayed down to keep the ship clean, and to prevent cross-contamination of cargo (many of the vessels will haul coal in one direction, and limestone or some other product on the return trip).

A US Coast Guard study was conducted to evaluate the potential impact of washing dust and loose materials into the Great Lakes waters. CH2M HILL was selected to develop sample plans, coordinate sampling events, collect samples, manage sample analysis, compile analytical and field data, and issue final reports. ASL staff played a key role in developing the sampling plans, conducting field sampling events, providing data management services, and summarizing analytical data for use in final reports. The ASL bioassay laboratory designed and implemented a study to investigate the effects of debris collected from the cargo vessels on fresh water algae growth. Other CH2M HILL teams conducted side-scanning sonar surveys of the lake bottoms in Lake Superior, Lake Huron, and Lake Erie. Additional studies were planned to collect water samples at various lake depths, and to study the effects of collected debris on test areas at the bottom of the lakes.

### Contacts

For more information on this and other services CH2M HILL's ASL can provide, please contact:

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