



CASE STUDY

Field Service

Minnesota Department of Natural Resources' Division of Fish and Wildlife

There is nothing fishy about new technology when the results prove beneficial.

Receiving recognition for its innovative use of technology, Minnesota Department of Natural Resources' Division of Fish and Wildlife won the 2006 Minnesota Government IT award for developing and implementing a robust mobile Fisheries Lake Survey system using Xplore X104C2 rugged tablets.

Before implementing the rugged tablets, the survey system required handwritten information on paper forms to be retyped in offices across Minnesota. Dozens of Fisheries Area databases were methodically analyzed for errors and consolidated in a process that took months every year.

Rick Lorenzen, Fisheries IT Supervisor at the Minnesota Department of Natural Resources, knew a technological advancement was necessary. For three years, more than 40 people worked on the project to define the requirements, select the hardware, determine appropriate data validation values, design and load the database, develop the entry screens, and rigorously test screens and reports.

Seven hardware testers evaluated over a dozen potential field hardware options, ultimately choosing Xplore rugged tablets.

The use of Xplore X104C2 rugged tablets in survey boats permitted data entry to be validated with fish in hand, eliminating redundant data entry and reducing errors. Immediate validation of data at the point of capture also ensured more accurate data for the Department of Natural Resources.

“The application of technology significantly improved efficiency while capturing fisheries data, speed of data retrieval, and quality of data stored,” Lorenzen said in his Lake Survey Project. “It also enhanced the ability to share the data with the public and other agencies.”



“The new Java client Lake Survey application is delivered to rugged tablets and desktop workstations over the DNR intranet and provides statewide access to a single database and dozens of reports,” Lorenzen said. “Data captured, stored, and analyzed by this system includes current and historic physical, chemical, and biological information regarding habitat, water quality, and fish population characteristics. This information is used to manage Minnesota’s fisheries.”

Other data, such as data from Minnesota’s largest lakes, was also made available in the new data structure design, providing a wealth of additional research possibilities for research biologists and other agencies as well.

In addition to making information more readily available, the tablets have also increased efficiency and improved quality for the department.

The rugged tablets have eliminated 27 separate copies of lake survey databases that previously required weeks of data consolidation annually. They also have ensured better data quality by providing validation when the fish is still in-hand instead of doing the data entry from paper over the winter when the fish was no longer available to recheck.

“They provide immediate reporting once the data is entered,” Lorenzen said. “Previously, reports were only published once a year after winter data entry and after consolidation of multiple databases.”

The measurable benefits were proven by cost savings of implementing the rugged tablets. Since data entry occurs directly onto the rugged tablets while in the field, approximately 8,875 hours of in-office data entry were eliminated. These hours saved the department \$195,250 annually. Overall, estimated cost benefits from implementing the application were \$216,170 each year

Not only did the rugged tablets save the department money, they also saved employees hours of memorization.

“The tablets provide intuitive screens with complete drop-down selection values that shortened the data entry learning curve for staff and eliminated the need to memorize 3 digit codes for dozens of fish and plant species,” Lorenzen said.



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