



FLEIS & VANDENBRINK

DESIGN. BUILD. OPERATE.

DIVING DEEP TO PROTECT INFRASTRUCTURE & PRESERVE AQUATIC ECOSYSTEMS

The Fleis & Vandenberg (F&V) Dive Team delves into the unseen depths of the water to investigate potential issues and determine solutions for municipalities. We specialize in assessing the structural integrity of bridges, submerged culverts, dams, docks, seawalls, and other underwater structures. We also conduct endangered species surveys and assist with relocating species beneath the surface.

F&V Dive Team leader and engineer, Shane Peterson says F&V strives to offer clients a “one-stop shop” level of servicing, including dive operations. “We were already offering above-grade National Bridge Inspection Standards (NBIS) inspections, bridge design, and bridge construction inspection services, so we wanted to offer underwater inspection services to serve our clients fully,” Peterson explained.

F&V’s Dive Team provides underwater inspections of structures spanning or abutting waterways. The NBIS requires that structures that have water depths over five feet be inspected every five years. Underwater Inspections are performed by a three-person team (Dive Team Leader, Qualified Dive Inspector, and Qualified Dive Tender) using SCUBA equipment with two-way communications. The inspections include a Level I visual and tactile examination and a Level II inspection involving physical sounding and cleaning of at least 10% of the submerged elements.

This fall, the team inspected a 1,200-foot-long freighter loading dock along Lake Huron in northern Michigan. The team examined the submerged sheet piles, with water depths ranging from 18–25 feet, using their Dive Team Boat to access difficult areas. The inspection was completed in 8 hours and included a comprehensive report with CAD drawings, photographs, and videos highlighting defects.

Our dive services include not only bridge, culvert, and structural inspections but also endangered species surveys. Earlier this year, F&V’s Dive Team partnered with ASTI Environmental to provide an endangered species survey, searching for freshwater mussels in the Grand River in Grand Rapids, MI.

Aquatic Ecologist Renee Mulcrone, from ASTI Environmental, said the lower Grand River

is rich and diverse with endangered, native mussel fauna. She hired the F&V Dive Team to survey these mussels due to a future Michigan Department of Transportation (MDOT) construction project on US-131 that will impact the river.

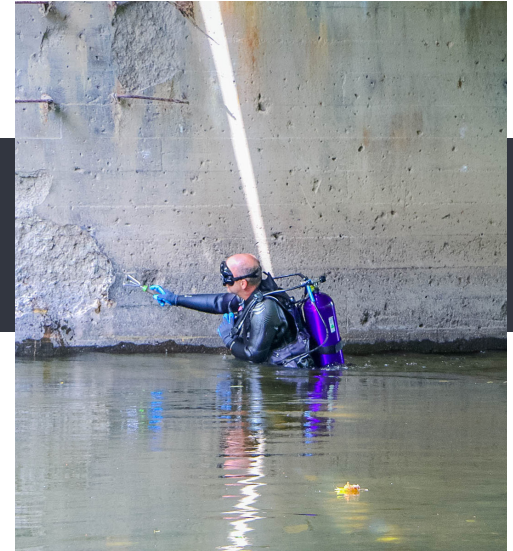
“Mussel surveys and relocations are needed when construction projects have “instream” impacts – this may include digging in the river, falling concrete [when bridges are torn down] and coffer dam installation,” Mulcrone said. The F&V Dive Team collects endangered, native mussels in mesh bags and transports them to biologists for identification.

“Native freshwater mussels are an important part of a river’s ecosystem, as they filter water and provide food and habitat for other species,” Mulcrone continued. “They are also indicators of good water quality, and some species are particularly sensitive to human impacts and pollution.”

To guarantee the safety of its divers during underwater inspections, F&V’s Dive Team members undergo comprehensive SCUBA training. This includes Professional Association of Diving Instructors (PADI) Open Water certifications and training in emergency oxygen administration, first aid, and CPR. Additionally, all divers complete annual dive physicals to confirm their physical fitness for these services.

“One of the reasons I continue to work with the F&V Dive Team is due to their adherence to safety procedures,” Mulcrone said. “They were also interested and enthusiastic about the work needed to survey the freshwater mussels.”

For more information on F&V’s Dive Team services or help on a project, please call Shane Peterson, PE, at 616.965.8770 or email him at speterson@fveng.com.



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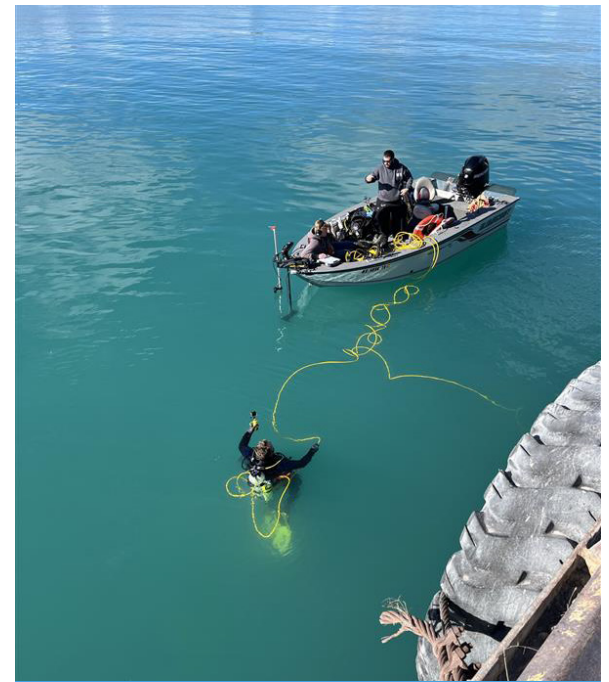
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- Renee Mulcrone, Aquatic Ecologist, ASTI Environmental

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