



Photo by Gina McKay

Living colour



By Sabita Majid

A new study suggests fluorescent green marine wear – rather than standard orange, red, or yellow – offers the best bet for surviving an on-water emergency.

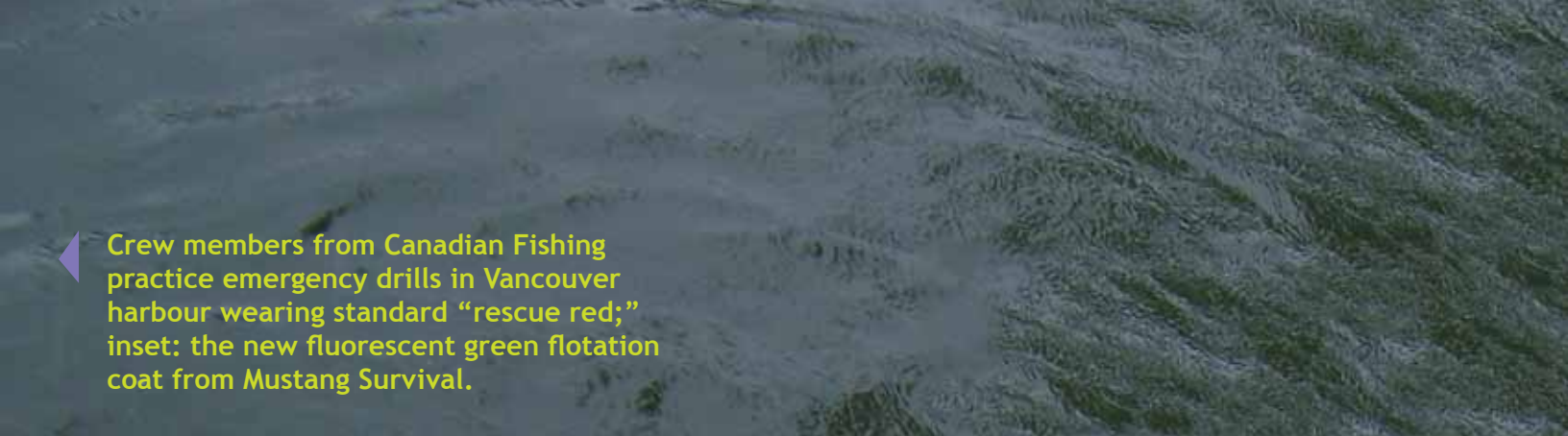
On the water and in trouble? The last thing you need to worry about is whether or not you're easy to spot by someone trying to save your life.

Now – despite the fact that bright orange, red, and yellow have been Canada's search-and-rescue colours of choice for decades – a new study suggests that, in fact, rescue materials made of fluorescent green stand a far better chance of being perceived by the human eye during a marine-based emergency.

The study, sponsored in part by WorkSafeBC's Research Secretariat program, found in particular that fluorescent green immersion suits worn by marine workers roundly beat standard oranges, reds, and yellows in terms of visual detection in water, particularly in low-light conditions. Lead researcher Wendell Uglene says he conducted the study, entitled *On-Water Visibility*, "to find which colour was most conspicuous when floating on the water, because we simply didn't know." Both simulated and actual

in-sea tests show the fluorescent-green colour, otherwise known as American National Standards Institute (ANSI) 107, provided higher visibility – and was detectable at greater viewing distances – than orange, yellow, and red in typical low-light conditions.

Uglene, who is also research manager for survival gear specialists Mustang Survival, says he was encouraged to test the visibility of fluorescent green in water after learning about the findings of a 2003 Illinois Transportation Research Centre study. That study found brighter green shades highly effective for land-based visual detection. Preliminary findings in Uglene's study confirm the comparative luminance or brightness of fluorescent green, making it a safer option for marine workers, fishing crews, and B.C. ferry operators. In the U.S., the ANSI green met with approval by the Coast Guard a year and a half ago, while European countries using standards compatible with the International Standards Organization (ISO) 15027 have been producing the updated green immersion suits for several years already.



Crew members from Canadian Fishing practice emergency drills in Vancouver harbour wearing standard “rescue red;” inset: the new fluorescent green flotation coat from Mustang Survival.

That’s not yet the case for marine workers in Canada. The Canadian General Standards Board (CGSB) 65.16 regulation for immersion suits is Pantone™ yellow, orange, or red. In fact, Maryse Durette, media relations advisor for Transport Canada, has yet to see Uglene’s study, but says some previous studies “have indicated that red, orange, or yellow are easier to see in the water.”

However, Uglene says a CGSB working group’s revised standard for helicopter passenger transportation suits (CAN/CGSB-65.17), pending publication, has adopted the ISO colour requirement.

Industry experts suggest improved visual detection would be another step toward an overhaul of immersion suits that were previously criticized in official inquiries of such incidents as the 2004 fishing trawler incident in Hope Bay and the 2009 helicopter crash in Newfoundland. (The former led to three deaths, and the latter, 17.) Subsequent coroners’ reports revealed that the standard immersion suits also failed to provide adequate protection against hypothermia.

Uglene says the absence of a nationally accepted standard for fluorescent green immersion suits means they are hard to come by in Canada. Even Mustang Survival, the company he works for, produces only personal flotation devices (PFDs), coats, and jackets in fluorescent green, but no immersion suits in this shade.

On the other hand, WorkSafeBC’s current safety requirements for high-visibility garments are consistent with Uglene’s findings: they include lime green for traffic control persons and general industry. WorkSafeBC industry specialist Ellen Hansen says she is hopeful the marine industry will adopt guidelines consistent with land-based workers.

And while Uglene’s final report is still in the draft stage, it has already sparked interest from the Department of Defence, the CGSB, and the U.S. Army Corps. Ernie Parolin, DND equipment program manager of floatation and life support devices, says he’s keen to see how new safety equipment guidelines might be adapted for the military, given that DND is still relying on “international orange” standards.

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*—Gina McKay, program manager
for Fish SAFE BC*

“I would like to see the report go one step further, to look at the visibility of these colours from the air, so we could determine which ones are most effectively seen from both fixed and rotary wing search-and-rescue missions.” In fact, Uglene says one of the study’s recommendations is that visibility studies be conducted from heights above water as well.

Gina McKay, program manager for Fish SAFE BC, is excited about Uglene’s preliminary results, claiming “there is no comparison” with the visibility levels bright green gear provides, based on the on-sea tests with three members of her organization. “Our focus is on how to make our fishermen safe.”

McKay suggests current national standards have a ways to go toward ensuring they remain up to date with existing equipment, technology, and industry needs. This initiative is complicated by the fact that a number of agencies regulate the marine industry, including WorkSafeBC, Transport Canada, Fisheries and Oceans Canada, and the Canadian Coast Guard.

“The best way to develop safety equipment is for end-users, regulators, and manufacturers to work together,” she says.

WorkSafeBC Research Secretariat director Ed McCloskey suggests Uglene’s study might prove useful in the eventual adoption of international standards for safety equipment.

“Wearing the most visible colour could mean the difference between life and death for a worker in the water,” he says. “This study will provide important evidence to assist in making the right choice.” 