

# TRACKING THE CATCH

A VICTORIA COMPANY TAKES ITS COMMERCIAL FISHING TECHNOLOGY TO THE NEXT LEVEL BY FORMING A STRATEGIC PARTNERSHIP WITH A GLOBAL LEADER IN ELECTRONIC MONITORING. IT'S A MOVE SEEN BY MANY AS A BIG WIN FOR FISHERIES SUSTAINABILITY AROUND THE WORLD.



**AT 4:30 AM,** Wes Erikson puts on his fishing gear and heads to the deck of his 42-foot vessel to begin cutting 300 to 400 pounds of bait.

Usually it's salmon, but sometimes octopus and squid are placed on the 2,000 hooks that troll through the waters of the Hecate Strait north of Vancouver Island — an area known for its strong salmon and halibut fisheries, violent storms and fragile glass-sponge reefs more than 9,000 years old.

By 1 p.m., Erikson and his team are hauling halibut on board, along with rockfish and ling cod, depending on how good the fishing is that day. It's a routine the 51-year-old commercial fisherman, based out of the Comox Valley, will repeat for the next four to eight days and one he hasn't missed since his first fishing season at six years old.



Archipelago's electronic monitoring technology is used in some of the world's most challenging climates, including British Columbia, Alaska, the Gulf of Mexico, the South Pacific and the Indian Ocean.

More than **30,000** sea days are recorded by Archipelago's electronic monitoring technology each year.

Archipelago has more than **600** electronic monitoring systems deployed in fisheries around the world.



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“Every day is different, so it’s really cool in that sense. I just love the variability of it. You can go to the same spot every year and just catch different things and different sizes of fish,” says Erikson. “It’s the only place in the world where I know exactly what I’m doing all the time. I love working so hard that you don’t know if you’re going to make it through the day and falling asleep just completely exhausted.”

Commercial fishing in B.C. has changed considerably since Erikson’s childhood, when anyone who had a boat and a strong back could make a living in the industry. With conservation concerns increasing around the world, B.C.’s groundfish fisheries came under pressure from the Food and Agriculture Organization of the U.N. as well as sustainability lobby groups, to increase the scope of its catch-reporting process.

In 1996 came the implementation of 100-percent monitoring on all vessels in the province’s fleet. Given the lack of technology at the time, the only way to do this was with onboard observers (biological technicians trained to go to sea). But the observers were costly (more than \$600 a day) and couldn’t be taken on small vessels for multiple days. Electronic monitoring was seen as the only option, even though many fishermen didn’t like the idea of constantly being watched.

### SEEKING SOLUTIONS

Knowing they needed cameras positioned in such a way to monitor fishing activity and identify fish species, the province’s commercial fishing industry envisioned what they needed for electronic monitoring. That vision was conveyed to Victoria’s Archipelago Marine Research (AMR), which had been providing at-sea observer and dockside-monitoring programs for three decades. The company stepped up in 2000 to help develop an at-sea electronic monitoring (EM) system that consists of a computer with multiple sensors, a GPS and video cameras that are placed on various parts of the vessel to record fish being pulled out of the water.

The footage and data collected is then analyzed in the AMR office to figure out what was caught and where. Logbooks are audited against the video footage and then compared to the offload.

Six years after they initially developed the technology, AMR’s EM program was implemented on the B.C. groundfish longline fleet, with each operator buying their own system. It has since expanded beyond Canadian borders, but not yet to the Canadian east coast due to different management issues there.

Although the adoption of its EM solution was a success for AMR, the company found itself grappling with the dual role of delivering a tech product while trying to provide the marine and environmental services, which formed the core of its business.

“We realized that the investment in product

development is a constant, and it’s never-ending and it’s expensive,” says AMR biologist and VP of monitoring technologies Howard McElderry, who helped create the technology.

“It really comes down to an incompatibility between products and services. For the product to really excel, it needs to be carried by an expert product manufacturer that has the ability to reach a global market — and that’s not us.”

The solution came this spring when AMR formed a strategic partnership with Marine Instruments — a Spanish company with world-leading expertise in research, design and high-volume manufacturing of marine electronics. McElderry expects the partnership will take AMR’s operations and technology to the next level, noting the innovation of Marine Instruments, which makes satellite buoys that tuna boats use to fish, along with unmanned vehicles in the water to collect data.

“[At AMR] we’re biologists at heart,” says McElderry, adding that every fishery has different issues. “We understand the importance of good information from these commercial fishing operations and we understand societal needs for ensuring public trust. There isn’t a real cookie-cutter solution to monitoring fisheries. It’s all guided by very unique characteristics to the fisheries and their issues. That’s what we’re good at.”

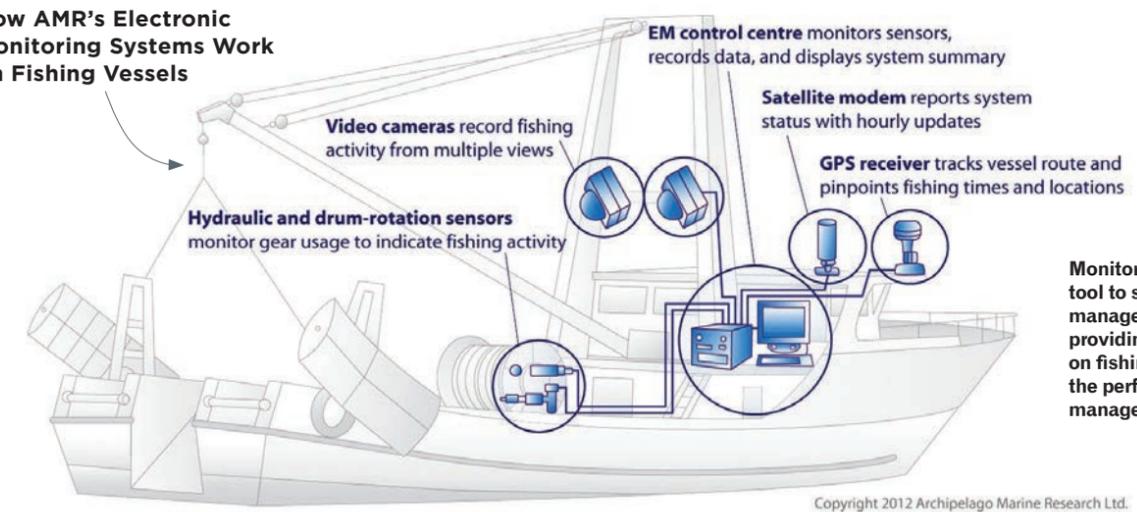
### ANSWERING THE BIG QUESTIONS

According to McElderry, the fundamental question officials want answers for is: what’s being removed from the ocean? The best place to get that information is on the boat when the harvest is taking place, since not everything that’s caught comes to shore. The data collected from EM technology can also help biologists understand how healthy the stock is, allowing the right decisions to be made for more sustainable fishery practices.

AMR’s technology, which has gone through four or five different versions and costs about \$10,000 for the entire system, is now being used by 250 vessels in B.C. and about 200 in Australia and Alaska. The company’s president and CEO, Shawn Stebbins, believes that over the next decade, with the help of Marine Instruments, a large number of fishery jurisdictions around the world will adopt the EM technology as it continues to advance.

“It [the technology] has changed things considerably. These guys now, they can fish for a much longer period of time and they can maximize the economic return for their fishery,” says Stebbins, noting there used to be a race for fish, but changing to the catch-share system in the early 90s allows fishermen to go out whenever they want to catch their share of the quota and fish when the market is right. The technology was the cost-efficient method of providing the monitoring that enabled the catch-

### How AMR’s Electronic Monitoring Systems Work on Fishing Vessels



Monitoring and reporting is a tool to support and improve the management of a fishery, by providing verifiable information on fishing activities and assessing the performance of fishery management plans.

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share management system to be implemented.

“The objective of most monitoring programs is to produce trusted data that can be used to manage the fishery, and every fishery has its own issues,” he says. “It’s an independent data source so that the users aren’t questioning who collected it and why.”

### THE GREATER GOOD

Back on Erikson’s vessel, the water is calm and music is playing in the background as fish start

coming out of the water. They’re lifted onto the deck, then thrown down the fish hole and packed with ice. Erikson often forgets the cameras are there, monitoring the fish being pulled from the water. He says the technology has been positive for the industry and has fundamentally changed the way he and other fishermen do business. The only downside, he notes, is that the data doesn’t show how effective fisheries have become at avoiding certain species.

“Monitoring fisheries is good for everybody,

no matter who you are. Fishermen can prove themselves innocent; environmental organizations can’t just hurdle accusations at us. We have the data to show what’s really going on, and fisheries managers have data for proper stock assessment,” says Erikson, who bought his own fishing vessel at the age of 19.

“These cameras track exactly where we are, what we’re doing, what we’re catching. It’s actually eliminated illegal fishing acts within the monitored commercial fishing community.” ■



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