



# The sea keeper

*Led by scientist Ron O'Dor, the Ocean Tracking Network uses underwater receivers and sensors to provide an unprecedented look at how the world's oceans work, while discovering secrets hidden deep below the surface*

It's ironic that a pioneer in the vanguard of modern ocean research was born 600 miles from the nearest body of water. However, for Kansas City, Mo., native Ron O'Dor, an early glimpse at the sea was the catalyst to a lifelong scientific voyage. "My parents took me to California on vacation when I was seven years old," he says, "and when I came back I told all my classmates that people were supposed to live by an ocean, and as soon as I could move there, that's where I was going."

Now 62, O'Dor is the senior scientist of the Census of Marine Life (CoML) in Washington, D.C. ([www.coml.org](http://www.coml.org)); associate dean of science at Halifax's Dalhousie University ([www.dal.ca](http://www.dal.ca)); and principal researcher of a revolutionary research project called the Ocean Tracking Network (OTN), ([www.oceantrackingnetwork.org](http://www.oceantrackingnetwork.org)). His bold childhood statement eventually led him back to California, where he studied biochemistry at the University of California, Berkeley, before heading up the coast to the University of British Columbia, where he earned a PhD in physiology.

While a postdoctoral fellow in zoology at the University of Cambridge in England from 1971 to 1973, O'Dor pronounced his commitment to the ocean. "My postdoctoral supervisor was an avid sailor and diver and converted me into a total marine creature," he says. "He got me interested in research on octopus and squid. The first job I was offered back in Canada was at Dalhousie, and it plunked me right in the middle of Canada's ocean playground."

Led by O'Dor and headquartered at Dalhousie University, OTN was recently award-



Ron O'Dor is the principal researcher of the Ocean Tracking Network.

ed \$35 million by the Canada Foundation for Innovation (CFI), ([www.innovation.ca](http://www.innovation.ca)). OTN will co-ordinate a broad scientific collaboration from more than 50 organizations and 20 countries. The initiative evolved from two successful CoML projects on the West Coast: Pacific Ocean Shelf Tracking (POST), which uses acoustic tags to track salmon; and the Tagging of Pacific Pelagics (TOPP), which uses archival tags and satellites to track large marine predators.

The technology used in both projects was developed and produced by Canadian companies. “The idea for OTN was to bring these two technologies together,” says O’Dor, “and because both of them came from Canadian companies, the obvious place to look for money was the Canadian Foundation for Innovation. It was what CFI was looking for in an international joint-venture project.”

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Archival tags are extremely accurate but must be recovered or read by satellites at the surface, which limits the species they can be used on. “The idea of OTN is that you can take these archival tags and hook them up, so that instead of having to come to the surface to talk to satellites,” says O’Dor, “they can talk to these acoustic receivers.” By placing a chain of receivers and oceanographic sensors on strategic “lines” in all of the world’s oceans, researchers will be able to track tagged animals as they cross these underwater curtains, recording information such as species, migratory routes, depth, salinity, temperature, and time of day. This information will shed unprecedented light on how the oceans work.

As the OTN’s listening curtains go up around the world, Nova Scotia companies such as Halifax-based Amirix/Vemco will be well-positioned to take advantage of the new market. Amirix/Vemco ([www.amirix.com](http://www.amirix.com); [www.vemco.com](http://www.vemco.com))

is the maker of the acoustic receivers being placed by OTN in strategic locations throughout the world. Founded in 1981, Amirix specializes in electronic design, while Vemco is a pioneer in underwater technology.

“Ron’s vision takes what our technology is capable of and presents an application for world collaboration,” says Sandra Greer, Amirix Systems Inc.’s president and CEO. “The OTN is important to Nova Scotia because it takes technology invented by Nova Scotian companies to new heights.”

Another industrial partner looking forward to working with OTN is Satlantic ([www.satlantic.com](http://www.satlantic.com)), a world leader in the development and delivery of advanced instrumentation to observe the ocean environment. Marlon Lewis, Satlantic’s CEO and chief scientist, is excited about OTN’s potential. “Technology developed and sold by Satlantic may very well be useful within the OTN program as it develops,” he says. “Satlantic is very interested in pursuing future opportunities once the details of the program are fully specified.”

In addition to the industrial economic potential, the pure scientific data OTN collects should affect fisheries-management policies and make Nova Scotia the hub of groundbreaking research. Steven Campana is a research scientist in the population ecology division at Halifax’s Bedford Institute of Oceanography ([www.bio.gc.ca](http://www.bio.gc.ca)) and an expert on sharks. “I would expect there to be economic ramifications on the fisheries,” he says. “For specific species, they could translate into quite a difference in catch quotas, and, in turn, money for the fisherman. From a different angle, the Halifax line is going to have a number of oceanographic sensors on it that will be used to detect changes in water masses and currents, and therefore measure climate change.”

The daunting depths of the world’s oceans still hold countless secrets, but new technologies such as the OTN promise to illuminate these little-known ecosystems and their inhabitants. With popular awareness of climate change and the growing need to understand the oceans, an enthusiastic Ron O’Dor revels in the possibilities. “We discover hundreds of new species every year, and we’re still just scratching the surface,” he says. “More than 90% of all animals and specimens collected before now were in the first hundred metres of the ocean, and it goes down four kilometres. It makes me realize how little we really know about the oceans—and what incredible opportunities there are to discover new things.”

— JOE FITZGERALD