

Tiny stowaways polluting local waters

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The ships entering Vancouver harbour were officially hauling cars and stereos, but below the waterline, they were also carrying tiny stowaways from Asia and the U.S.

In a comprehensive study on the life forms sailing into Canada's western harbours, scientists have found that ballast tanks are teeming with life. Researchers studying the water in the tanks found dozens of different species of zooplankton and small sea animals. In some instances, there were thousands of creatures in every cubic metre of water taken on to stabilize the ships. Some were well-known species of flatworms or clams. Others remain mysterious.

"We had no way of identifying what some of them were," says Colin Levings, the federal fisheries scientist who led the study, published this spring in the Canadian Journal of Fisheries and Aquatic Sciences.

More than 200 alien species are already believed to have taken up residence in Canadian waters, including the infamous zebra mussels that have disrupted the Great Lakes' ecosystem. Some, like the Japanese varnish clam that appeared on B.C. beaches a decade ago, appear to be relatively harmless. Others, like the predatory European green crab spotted on the east and west coasts, could devastate the clam industry.

The West Coast study, and related work in Eastern Canada, indicates many more foreign species are slipping into the country.

"San Francisco Bay has an enormous problem, and if we're not careful, it could turn into a Canadian problem," says University of Windsor Professor Hugh MacIsaac, who heads a national network of scientists trying to convince the federal government to take the threat of invasive aquatic species more seriously.

Ballast water is believed to be a major means of entry. The water is picked up in foreign ports or on the open ocean and discharged when the vessels arrive at their destination. To reduce the number of stowaways, ships are required by governments, port authorities and international agencies to exchange ships' ballast water at sea to flush the tanks of life forms picked up in their last port of call.

But Levings' study points to the serious limitations of such ballast exchanges. He and his colleagues examined the creatures in 33 ballast water samples taken from 16 ships that frequent Vancouver harbour; most were from Japan but a few came from ports in Mexico and the U.S. While mid-ocean exchange greatly reduced the number of stowaways, the researchers found it did not eliminate them. Organisms persisted in tanks after flushing.

"Therefore, it is likely that the ballast water discharged in an arrival port will contain remnant, viable populations of organisms taken up during ballasting in the coast region of origin," the study reports.

MacIsaac's team in Windsor has documented a related problem with ships in the Great Lakes. Even when vessels enter the lakes carrying no ballast water, they carry worms and other life. They also carry millions of cysts or eggs in the sediment that collects on the bottom of ballast tanks. These hatch into creatures like fish-hook fleas, which originated in Eastern Europe and are gumming up fishermen's nets and lines in the Great Lakes