

Shifting Seas Part 5: The challenge facing consumers

Larry Pynn

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Robert Hanner couldn't resist. While reading the menu at his favourite fish-and-chips shop in Cambridge, Ont., the DNA researcher noticed the words "halibut family."

Equal parts curious and suspicious, he took a portion of the fish back to his lab at the University of Guelph, where he serves as associate director of the Canadian Barcode of Life Network in the department of integrative biology.



CREDIT: Ian Lindsay/Vancouver Sun
University of B.C. fisheries researcher
Jennifer Jacquet with a red snapper
Wednesday at Granville Island.

The barcode network is an ever-expanding DNA data base - 5,500 fish have been listed internationally so far, with another 25,000 still to go - that allows scientists to reliably identify a particular specimen.

In Hanner's case? "Hake," he revealed. "It's not even in the halibut family."

Halibut is a bottom-dwelling flatfish and one of the most lucrative fishes on the market. Hake swim mid-water and figure much lower on the consumer food chain, a product for which there is no fresh local market yet remains popular in less-affluent eastern European countries.

Mislabelling raises issues of public health, consumer fraud, and environmental sustainability. And the increasing globalization of seafood makes it all the more difficult for consumers to know what they're getting.

"When you buy things caught in Chilean waters, processed at sea on a Chinese vessel, sold to a Russian distributing firm that then markets it in Canada, you see where the disconnect comes in," Hanner argues.

"Buying processed fish sticks? God knows what's in them."

The Canadian Food Inspection Agency list of acceptable common names for, say, red snapper (<http://www.inspection.gc.ca/english/anima/fispoi/fishlist/canadahomee.shtml>) includes no fewer than four different scientific names, each with up to six acceptable common names.

These "red snappers" vary hugely in terms of size, shape, colour, habitat, and stock status, to the point where you could reasonably question whether anyone in Canada can accurately identify them all by sight.

Lutjanus sebae ranges from eastern Africa to Australia, Lutjanus campechanus the Gulf of Mexico, Sebastes ruberrimus (yellow-eye rockfish) from Alaska to northern Mexico, and Sebastes reedi (yellowmouth rockfish) from the Gulf of Alaska to northern California.

Insanity of the system

Hapless consumers may know only that they are getting a flaky white fish.

Hanner shakes his head at the insanity of the system.

"All of this is crazy to me, that we can continue to perpetuate all these categories of names and expect to have some sort of culpability or precision in their application.

"What's legal in one country is not in another. As we go to international global markets, are the companies going to comply with all the national markets they market in? It gets so convoluted that it boggles the mind."

Another study in the U.S. found that three-quarters of fish labelled as red snapper (*Lutjanus campechanus*) proved to be other fish.

"It's like that game you played in kindergarten," Hanner said. "You all sit in a circle and whisper a secret in each other's ear and pass the secret around the circle and it bears no resemblance when it gets back to you."

A DNA study by Hanner and graduate student Eugene Wong found that 23 of 91 seafood samples purchased in the Toronto area and New York City were mislabelled.

"There are guidelines out there, but they're not being enforced," Hanner said.

One case involved tilapia, an inexpensive fresh-water fish widely raised through aquaculture, substituted for higher-end white tuna (albacore).

Sushi restaurants substituted lower-end pollock for crab without telling consumers.

Atlantic halibut, a stock at risk, was marketed as Pacific halibut, a fishery considered sustainably managed through the International Pacific Halibut Commission.

"Even when you think you're doing the right thing and paying extra for Pacific halibut, you're exploiting a collapsed stock," Hanner lamented.

To confuse matters further, some of the world's fish are also renamed to improve marketability: slimehead is sold as orange roughy, oilfish as blue cod, basa as Cajun delight catfish, and spiny dogfish as rock salmon.

The potential health effects of mislabelled seafood are also troubling.

In 2007, pufferfish imported to the U.S. from China and sold as monkfish was recalled after two persons in the Chicago area became ill. Pufferfish contain tetrodotoxin, which can cause death and cannot be destroyed by cooking or freezing.

Studies by Jennifer Jacquet and Daniel Pauly of the University of B.C. Fisheries Centre also note that seafood products cause up to 20 per cent of food-borne illnesses contracted by 76 million Americans annually. Mercury is also a concern with certain tuna products.

The researchers call for global standards that verify species, country of origin, and labelling - third-party validation from "cradle to plate" - and stiff penalties for offenders.

Hanner said despite concerns, there is no sense of urgency to fix the problem in Canada, where health agencies are more interested in issues such as mad cow disease or monitoring of shellfish for paralytic shellfish poisoning, which is potentially fatal and associated with algae blooms known as red tide.

"Is it their top priority? he asked. "Probably not. Until someone dies, nothing is going to happen from a regulatory perspective. Until it becomes a health concern, we can't get politicians interested in this.

"So far in Canada, nobody's been poisoned."

Preston Chan, a fish policy officer with the Canadian Food Inspection Agency in Burnaby, confirmed the agency does not utilize the DNA barcode data base for routine audits of fish labelling. But he said the agency is reviewing its list of accepted common names and continues to monitor international trends in food audit systems.

Inspectors currently look for scientific rather than common names on import shipments, and conduct visual inspections of whole fish to see if they appear to match the name under which they are sold.

Where specific concerns arise, the agency employs electrophoresis, a process by which molecules are separated out through an electrical charge, to identify fish. Hanner countered that the process can identify only a limited number of species of commercial concern, compared with the DNA barcoding system.

He encouraged reputable operators in the seafood industry to get involved and see the value of a system whereby a symbol on their products would provide consumers with some assurance they are getting legitimate products.

He noted that some restaurants are not even aware of mislabelling that occurs farther down the line. "It's clearly happening in the distribution chain."

Hanner said consumers can reduce the chance of getting duped by catching the fish themselves or, more realistically, buying fish locally from government-regulated fisheries, and getting to know their local fishmongers.

"It's become much more problematic as the industry goes global. If you're in Vancouver and buying fish from the local fisherman, I don't think that's where the problem is."

Buying the fish whole is another way to reduce the risk of being duped. "It's very hard, once something has been processed into a fillet, to sort this out."

Mislabelling only confounds the efforts of non-governmental organizations working to educate consumers about the need to support sustainable fisheries.

Seachoice, operated by Canadian Parks and Wilderness Society, David Suzuki Foundation, Ecology Action Centre, Living Oceans Society, and

Sierra Club of Canada, provides a sustainability rating for various seafoods.

The website (www.seachoice.org) warns consumers off farmed salmon because of concerns over the exploitation of fish stocks for feed, pollution of local waters, risk of disease, and parasite transfer to wild stocks. B.C. Pacific salmon has a yellow rating - "some concern" - with Fraser River salmon currently considered a poor choice.

The Vancouver Aquarium has initiated its own program, Ocean Wise, which provides recommendations to restaurants and other food outlets for buying sustainable seafood.

"There is huge public interest in wanting to do the right thing," aquarium president John Nightingale said.

Notable on its "unsustainable choice" list are Atlantic farmed salmon (open system farms or net pens create environmental and ecological concerns), spiny/pink scallops (dredge-caught, bycatch, and habitat damage), and northern shrimp (bottom-trawl bycatch and habitat damage).

System largely voluntary

The aquarium continually upgrades its list based on the latest information and research on sustainability of fish stocks. But the system is largely voluntary without a rigorous compliance program.

"There is no way we can monitor everybody all the time," Nightingale said. "The chefs are one of the best guarantees. It's their reputation on the line."

Jacquet and Pauly note that "mislabelling is most often done by distributors and the final seafood retailer for the sake of increased profits."

They add: "Rather than pay high prices, distributors, retailers and restaurants often buy fish of lesser value, illegally sell these fish as their higher-value relatives, and accrue the windfall profits.

"The consumer, meanwhile, loses."

B.C. commercial fisheries are seeking sustainability certification from the London-based Marine Stewardship Council as a way to better market their products around the world.

Sockeye, pink and chum salmon, as well as halibut, hake, sablefish, and dogfish, are in the full assessment stage of certification. Seven other fisheries are just beginning the process.

Jacquet and Pauly note that Asia consumes two-thirds of the world's seafood and is largely uninterested in knowing whether it is harvested on a sustainable basis. Ditto for Latin America and Africa.

lpynn@vancouver.sun.com

[Shifting Seas Part Four: The war on poaching](#)

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