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**NEWS**



Vancouver's favourite seafood comes with a hidden environmental and economic cost. Photo-Dan Toulgoet

**the price of sushi**

When Rosalind Greenwood has a hangover, she heads out for sushi.

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Imagine listening to sound sculptures in a park near the Burrard Bridge. Imagine large beds of flowers blossoming, herb gardens springing with life and vegetables sprouting from cars converted to roadside planters.

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**NEWS**



Although Chef Hidekazo Tojo sources most of his seafood locally, he occasionally has to buy certain types of seafood internationally. His customers go through 20,000 lbs. of albacore tuna a year. Photo-Dan Toulgoet

**the price of sushi**

By Rhiannon Coppin-contributing writer

When Rosalind Greenwood has a hangover, she heads out for sushi.

She'll shrug into her blue Adidas sweatpants, fleece top, flip-flops and her SFU baseball hat around 1 p.m. on any given Sunday and shuffle down Davie Street to her favourite haunt where a bowl of miso soup has already been set aside. The soup revives her-it's her own personal hangover cure-before the main course arrives.

Greenwood manoeuvres through two pieces each of raw albacore tuna and spring salmon slices on nuggets of sushi rice, and six pieces of seaweed- and rice-wrapped maki roll. Greenwood also eats sashimi (raw seafood) or sushi (raw seafood or other ingredients on nuggets of rice) on study breaks, on dates, on the weekend-in short, whenever she can and whenever her student budget affords it. Usually, she indulges twice a week, but she'd prefer to "get her fish on" up to four or fives times a week.

Like many Vancouverites, Greenwood is a self-confessed sushi addict.

Shoving an avocado and fake crab-filled California roll into her lip-glossed mouth, Greenwood explains exactly why sushi has become her hangover cure and favourite meal-it soothes her stomach, it tastes good, and is considered a healthy food when eaten in moderation.

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Hailing from Edmonton, Greenwood first tried sushi five years ago before moving to Vancouver and getting hooked.

"Flying fish roe was the first thing I tried," she says, "and to be quite honest it was a little bit weird. An hour later I was still fishing out the little eggs out from the crevices of my teeth."

Her favourite item though is tuna sashimi. For about \$9 to \$10 in most Vancouver sushi restaurants you get a plate of eight or nine thick slices of tuna, or tekka, and for a little more you can get toro from the fatty underbelly, which is generally regarded as the tastiest cut.

Greenwood, finishing an honours degree in criminology, considers herself generally well-educated and yet she confesses that she really doesn't know much about where her sushi comes from. She's vaguely aware that the real cost of sushi stretches beyond her limited piggy bank, but she doesn't have all the facts just yet.

Greenwood is sure that she ought to avoid farmed salmon, citing the spread of sea lice as one reason, but she isn't so sure that she can tell the difference between farmed and wild salmon by sight. If you ask her if she knows how much or even what kind of fuel different fisheries use, she'll shrug. Ask her where the piece of raw tuna she's about to plop into her mouth comes from, and she wouldn't be able to say for sure if it was local, or if it's from either a depleted and endangered fishery or from what's considered a "sustainable" fishery. She doesn't even know what type of tuna she's eating.

What she doesn't know can-and will, in time-hurt us all. Sushi is the most obvious example of Vancouver's love for and consumption of seafood. But as a relatively affordable food it also comes with a hidden environmental cost. As the true price of sushi catches up with us in the form of collapsing stocks, struggling independent fishermen, the exploitation of the waters of the southern hemisphere, and health concerns, sushi lovers are in a position as consumers to make a difference in how we get our food. But they have little choice now when it comes to seafood. Unlike coffee, which is often labelled so that we can narrow down our purchase based on its fair trade or organic status and country of origin, the origins of our seafood, for the most part, remain a mystery.

Sushi has its addictive origins in Japan in the early 1800s with a chef named Hanaya Yohei, who improved on a 7th century tradition of fermenting and preserving rice and fish, usually freshwater carp. Yohei's fresh and fast form took off, and chefs in Tokyo further developed Edo-style nigiri-a select bit of seafood on a small pad of seasoned rice.

Japanese immigrants to North America made further culinary innovations on traditional dishes. Sushi chef Hidekazo Tojo immigrated to Vancouver in 1971, a time when the city had no sushi bars and only a few Japanese restaurants that specialized in

steak. In 1972, Aki on Powell Street was one of the first restaurants serving raw fish in Vancouver. Into the late '70s and early '80s, as more Japanese businessmen visited Vancouver, more Canadians travelled abroad, and shows like Shogun got North Americans interested in Japanese culture, sushi slowly became more popular.

Setting up shop in the famous Broadway restaurant that bears his name, Tojo invented our now commonly found and beloved California rolls (crab and avocado), inside-out rolls, spider rolls (soft-shell crab and vegetables), B.C. rolls (barbecued salmon skin and cucumber), dynamite rolls (prawn tempura), and the multi-piscic rainbow rolls.

On a rainy April afternoon, chef Tojo sits and drinks genmaicha tea as his crew continues prep work for the dinner rush. Though his restaurant is pricey, commanding up to \$7.75 for his version of a dynamite roll that neighbourhood sushi bars dispense for less than \$4.00, Tojo's is well-attended and well-received. It has garnered various gold prizes in Vancouver Magazine's annual restaurant awards, and is widely regarded as one of the top three sushi restaurants in North America.

Each year, according to Tojo, his patrons eat through roughly 28,000 pounds of mostly albacore tuna, 10,000 pounds of wild salmon, and 1,500 pounds of B.C. prawns. Though he tries as much as possible to source his seafood locally, usually through Albion Seafoods, Seven Seas, and Granville Island merchants, he occasionally needs to import some types of fish: octopus and bluefin tuna from Spain, and bigeye and yellowfin tuna from Chile and Hawaii.

For the 300 to 400 sushi establishments he estimates are in Greater Vancouver, 130 or so of which are in Vancouver proper, there are about 20 suppliers that he knows of. "Most Japanese suppliers know about quality," he says, but there are also many seafood suppliers and, in turn, sushi makers offering cheap seafood, which has its own set of caveats.

Just because you can afford cheap sushi doesn't make it good for you.

According to Tojo's experience, lower prices usually mean there is something wrong with the seafood. It might have been caught illegally, sourced from polluted areas, or is generally of poor quality. Pacific albacore, for example, migrate from Hawaii to California and then up to Canada. When they reach Canada they are well fed, healthy, oily, and tasty; if they are caught in California, they are dry and emaciated from the mid-ocean trip.

Most of the sashimi tuna eaten in B.C. is albacore tuna caught offshore and flash frozen, but we also import yellowfin, bigeye, skipjack, and occasionally western Pacific, southern, or Atlantic bluefin maguro tuna-the priciest and most valued of tunas for sashimi. In January 2005, a 234 kilogram bluefin netted its broker

\$56,104 US in auction at Tokyo's famous Tsukiji fish market.

Pacific albacore tuna-much cheaper, and more easily found-is, however, a fish earmarked by Health Canada and both the American FDA and EPA as a fish that pregnant women, nursing women, women of child-bearing age, and young children should avoid due to the high accumulation of methyl mercury in its meat. "Light" canned tuna is less risky, since it is made from fish too young to accumulate as much mercury, but the thick fatty cuts from older fish in demand with sushi fans should be limited to two servings or fewer per week. The fish are not banned outright for consumption in Canada because Health Canada, which set its guidelines for mercury levels in fish in the 1970s, considers tuna a "gourmet" food that is not part of a regular diet. Officials could not be reached at Health Canada for comment, but according to a CBC story from 2001, tuna, shark and swordfish are not even tested for mercury because of their gourmet status.

Greenwood knows about the problem of mercury in tuna, but can't get over her cravings all the same. "I probably piss out mercury at this point but I don't care. I probably should care, but I don't," she says, going in for her final piece of tuna nigiri.

Tojo notes the explosion of what he feels are low-quality sushi bars in Vancouver in the past eight years, and shakes his head. They can get away with cheaper lower-quality tuna, marked-down farmed salmon, and rely even-in the case of supermarkets-on mechanized sushi machines which prepare rolls that can sit around for up to three days in the deli.

"From the customer side, you must be more educated. Don't go to a cheaper place. No! It's the same as McDonald's; you know McDonald's fast food? Now sushi has become fast food," he says.

But over the past few years Tojo has noticed that bluefin tuna in particular is getting harder to stock, and that seafood prices overall are climbing in relation to rising fuel costs. "My opinion: I think it's good that fuel prices are going up. It's a warning to people to save more fuel," says Tojo.

But it's not that simple. The rising price of fuel might reflect the true cost of fishing, but it is another factor in how the modern fisheries striving to meet our demand is squeezing out independent fishermen.

Before the age of oil, and as late as 1950, fisheries and fishermen relied on wind and manpower to steer boats, haul in nets, and process fish. The nutritional value of the catch-the calories-needed to exceed the energy expended by the human muscles engaged in the trade to make the activity worthwhile.

Traditional low-input fisheries still exist in many parts of the world, but oil-based, high-volume fisheries now account for the majority of

global "landings," over 90 million tonnes of wild fish and shellfish each year, up from 20 million tonnes in the early 1950s.

In these fisheries-especially those targeting "high value species" such as bluefin tuna, whose yearly catch rates between 1950 and 2000 increased a thousand per cent from 200,000 to two million tons-it is now common for fossil fuel inputs to absolutely dwarf the energy to be gained by eating the fish.

It is a basic cost-expense equation. If the amount of energy used in fishing exceeds the amount of energy contained in the fish caught, it is a wasteful endeavour. And so it is with many of our fisheries, which continue production even though stocks are for the most part in decline thanks to larger boats, more efficient technology, and diesel-lots of diesel.

A bucket of vermilion-tinged sole struggle, gasping for air as a Japanese fisherman dumps them onto a tray. It's a balmy April Saturday. Gasoline prices have just soared to \$105.7 per litre, which was heretofore only known as the FM frequency of CBC Radio Two. Japanese tourists and nikkeijin are wandering in groups around historic Steveston, which was one of the first Japanese communities in Canada and established as a thriving fishing base in 1885. On Fisherman's Wharf, fishing boats named Silver Dragon and Pacific Searcher are unloading stock: pollock, hake, sole, coho salmon, shrimp, and albacore tuna. Nearby megacorps brokers Paramount and Jimmy Pattison's CanFisco, makers of gold seal canned salmon, are silent, for now. A huge 120,000 litre "dragger" pummels out to sea-destined to drift for weeks in international waters past the 200-mile mark, deep-fishing for tuna or halibut.

Hungarian-born Zoltan Czigler is busy cleaning his fishing boat Monarch, which is licensed for salmon fishing on the west coast of Vancouver Island. Czigler works as a machinist to make a living, but still fishes aggressively-when he can make a go of it. On April 22, as the 35th Earth Day is commemorated around Vancouver, Czigler will be fuelling up in Ucluelet, taking on as much as 4,000 litres of diesel as he readies to take to the sea.

Four years ago, he could have expected to pay around 34 cents per litre. Now, he reports, he'll pay upwards from 74 cents in Ucluelet to 82 cents in Zeballos. "It's not viable," he says.

It will cost him at least \$300 in diesel to get the white Monarch out to Ucluelet. Once he's out 40 miles from the West Coast, he'll burn upwards of 12 litres-or eight dollars-an hour whether he's catching anything or not. He figures if he catches 200 10-pound spring salmon on a week-long outing, fetching four dollars per pound each for a total of \$8,000, he'll be lucky. Then he has to pay moorage fees, repairs, equipment bills, a deckhand, and the dreaded fuel costs.

"In the last eight years it's been total devastation," Czigler explains, citing restrictions on fishing coupled with rising fuel costs as the

reason why he can't make ends meet fishing full-time.

"I had a nice big house in Nanaimo and had to sell everything and move out," he says. "I'm probably luckiest. When the fishery starting saying they were buying back boats [and their licences] because the fisheries were collapsing [eight years ago], it annihilated families. Broke them apart, lots of them. I knew a couple of them [fishermen] who killed themselves."

The yearly catch quota this season for spring salmon on the west coast of Vancouver Island, where Czigler's licence is based, is 135,000 fish. This quota, spread among 230 licences, means an average income from the fishery of \$23,000 from 600 fish each licence holder can catch. Most of the time, with a small monthly catch allotment, bad weather, and high fuel costs, it just isn't worth it. Only the big companies like CanFisco, with multiple boats and licences giving them a wider reach and an economy of scale in costs such as buying diesel in bulk, can survive.

Whether Czigler's day job will have to start subsidizing his fishing habit is one thing. Whether society can support his fishing habit is another.

The energy return on investment of fishing for wild salmon, or the amount of energy in all the landings divided by the energy—mainly fuel—used in catching the fish, is around seven per cent. Mining tuna, "the chicken of the sea," is about as efficient as raising actual chickens: around three per cent. Farmed salmon requires twice as much energy to raise as wild salmon requires to be caught.

Beyond that, the farmed salmon requires even more energy to be re-caught. Czigler caught 40 escaped Atlantic farmed salmon in a recent season, out of a total catch of 1,500 off the West Coast. He found twigs and bark in their stomachs, and theorized that the fish thought the wood pieces were food pellets. He says he can usually tell when an escapee is on the line, because they bite at their usual feeding times: right on the hour at 2 p.m., 4 p.m., and so on.

He won't keep them; he'll chop them up and throw them back. He says he's seen too many obvious health problems and strange physical features in the fish he's caught: "The whole fish—I don't know what his problem was, maybe jaundice—was yellow, citron. Yellow!"

Sushi chef Tojo avoids farmed salmon. "Don't eat farmed salmon," he sternly warns. "I don't like it. It's not natural."

Tojo's concern arises mainly from the fact the feed that is issued to penned salmon isn't all natural, containing, as he claims, hormones, vitamins, and carotene that turns the normally grey flesh a peaky orange colour.

Sushi fan Greenwood also avoids farmed salmon, viewing it as a

foreign species introduced into the West Coast ecosystem. She says the choice to buy wild is "like buying free range eggs versus regular eggs." She says there are differences in the quality, health, and lifestyle of the animals involved.

If farmed salmon seems like such a raw deal, then why do we have so much of it?

"That's a good question," answers Dr. Daniel Pauly, the director of the Fisheries Centre at UBC and the principal investigator for its Sea Around Us project. "You can ask that question right there: why are we doing it and why are we doing an expansion of it while nobody likes that stuff?"

Pauly thinks that the salmon farming

industry lobbies well, but he places the onus on the consumer for becoming better informed: "Some people think they don't make a difference. Some people think farmed salmon is good fish, and they aren't willing to pay the price of the fresh wild caught."

Part of Pauly's research with the Sea Around Us involves investigating the effect of fisheries on the world's marine ecosystems, and using those results to support the development of sustainable, ecosystem-based fisheries policies.

Pauly is pleased, in a sense, that fuel costs are rising. Right now, he argues, seafood doesn't cost the consumer enough because it is subsidized through cheap diesel. Higher fuel prices, he said, will "reduce the amount of energy that you can spend on certain activities and it allows you to correctly value things."

Pauly likens bottom-scraping trawlers to clearcuts of the ocean floor, and even "sustainable" fisheries such as ocean prawn harvesting are harmful due to their high levels of discarded by-catch.

As a conservationist concerned with depleted and endangered stocks, such as Atlantic cod and bluefin tuna, any re-valuation of the world's fisheries in light of higher fuel prices is welcome to him.

Pauly is also critical of the pricing of imported seafood from nations in the southern hemisphere. According to the UN, exports of fish and fish products to wealthier nations from developing nations, which may not share Canadian standards of marine conservation and stewardship, is an industry close to four times as large as the coffee export business, and ties up more money in exports than cocoa, bananas, rubber, and tea combined.

Fuel prices may, in a way, solve our fisheries problems for us. With no cheap way to get the big boats out, economics will curtail pirates, poachers, or overzealous Canadian companies. They won't be able to afford to get far out to sea, especially past the largely

unregulated 200-mile offshore "boundary," to wipe the sea clean.

But we can have our sushi and eat it too, at least that's what the UN hoped when in March its Fisheries and Agriculture Organisation created and adopted a set of voluntary guidelines for the eco-labelling of fish products. Eco-labelling of seafood has already occurred to a small extent with the "dolphin-safe" certifications, but new guidelines would have seafood products labelled with country and region of origin as well as method of harvest or catch.

It's part of what they hope will become a global marketing strategy targeted at choosy middle-class consumers, aimed at improving seafood's oft-salty image.

"Do I think we should have fair trade fishing? Sure, it's a great idea. But can you implement it? I guess it really does start with the consumer," says Greenwood, now finishing her meal.

Greenwood's lifestyle isn't too far off from many sushi eaters who live in the downtown core. She doesn't drive, she recycles, she returns plastic bags to Safeway, and leaves her bottles out for dumpster divers. She tries to do her part, but she won't give up fish even though she can't verify she's consuming it responsibly.

"I'm a little bit of a hedonist. If I feel like I want to eat some, I'll have some," she says.

If the past few decades left us drunk on fish consumption, then 2005 finds us sobering up to a new reality. Miso soup might help us with our current hangover-when we find the oceans hurting more than our heads after a night with Jose Cuervo-but we'd be advised to skip the second course unless we know what its true costs are to the oceans, the environment, other nations, and ourselves.

There's a reason sushi is cheap in Vancouver, mainly that the true price we pay is hidden. Eco-labelling of seafood could become the next "fair trade coffee" issue, putting information, incentives, and choice back in the hands of consumers. In the meantime, we'll keep chowing down like there's no tomorrow.

Rosalind Greenwood pays her bill and returns to her apartment. Farmed salmon in Clayoquot Sound make a run for it. Back on the docks at Steveston, the sole are still gasping for breath.

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