

Fall 2006

The Planet, 2006, Fall

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THE PLANET

Fall 2006



Is Hood Canal *dying?*

A diverse ecosystem suffocated
by low dissolved oxygen

Organic Overload?

When buying organic has
a negative impact

Road Block

Western transportation
strands students

A New Sawmill Comes To Town

Environmentalists seek
a compromise

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Cover Photo by Elisa Weiss. The deep-dwelling spot prawn, the largest shrimp in Puget Sound, was sighted at a mere depth of 20 feet. The shrimp are struggling to survive in less than one-tenth of the depths they are normally found due to low levels of dissolved oxygen.

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Dear Reader,

Lately, environmental media is struggling with ways to keep readership. So much of environmental stories hammer global warming, pollution, and species depletion in depressing monotony. So many times the message is "the earth is dying, it's your fault, and there's nothing you can do about it." Rather than taking action after we read such stories, we feel guilty about our decisions to drive to work or school instead of taking public transport or biking. We cringe at our forgetfulness at the grocery store as the clerk loads produce in a plastic bag when we had a perfectly good, reusable canvas one at home. We drink beer out of aluminum cans and only use one side of our printer paper. Each time we feel guiltier, and each time the real point is completely missed.

Admittedly, this issue of The Planet has several stories which highlight seemingly larger than life problems such as low dissolved oxygen in Hood Canal, the threatened pinto abalone, and the irreversible environmental impact of producing aluminum products. After reading this issue, you might sigh and admit defeat, thinking you will never be able to lessen your impact on the earth. But I would urge you to look at the positive side to organizations like the Whatcom Land Trust and the ReElectronics program which are working in our community to institute positive change. Even students abroad like Andrew Bernhardt find time to be activists outside of their home country and comfort zones.

The "Green Living" section of this issue shows how you can make small changes in your own life routine that in the long run can make a big difference. Forgetting your reusable coffee mug and using a paper one instead one day out of the week is ultimately not going to make a lick of difference. But what will is your ongoing commitment to stay informed and make the environment a priority every day.

We thank you for your readership and welcome your comments and suggestions in the form of letters to the editor.

Sincerely,



Shawn C. Query

Special thanks to: Bill for making our lives easier in so many ways. Everyone who donated their time to speak in class. The graphic design department for their continued support. Don Rothaus for his help with the abalone story. Laurie Rossman and the printshop team.

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**FORESTRY:
A Conservation Compromise**

By Page Buono

One of the largest landowners and logging companies in California just built its second Washington saw mill in Burlington. The company plans to harvest 127,000 acres of Skagit and Whatcom forests, but is receiving little flack from local environmental agencies hoping to find a compromise.

WORLD

Seafood population in decline

Scientists estimate the world's fish and seafood stocks will collapse by the year 2048 if current human consumption trends continue, said Boris Worm, lead author of the study in *Science*, and a professor of marine conservation biology at Dalhousie University of Halifax, Canada. Scientists performed the study over a span of four years, involving researchers from around the world who studied seafood and fish population trends in the last 1,000 years. If the high pace of harvest continues, there could be an increase in coastal flooding and reduced water quality. Worm said the trends can be reversed through sustainable fishing methods, creating marine sanctuaries and limiting pollution from coastal areas.

SOURCE: REUTERS NEWS SERVICE

Russian Peninsula provides refuge for Pacific salmon

Kamchatka, an eastern Russian peninsula, is proposing seven tracts of wilderness to be designated as salmon protected areas. The proposed areas, which the Kamchatka government designated in August, include nine rivers and more than 6 million acres. The area would exceed the size of many renowned protected areas in the United States, including Adirondack Park, the largest nature reserve in the continental United States. In Kamchatka, all six native species of Pacific salmon continue to spawn, and scientists estimate that one-sixth to one-quarter of North Pacific salmon originate from the peninsula. The government of Kamchatka plans to produce the wild salmon for food, profit, recreation and scientific study, and as a genetic reserve. The approval of the protected areas would put Russia in the forefront in efforts to protect wild Pacific salmon stocks.

SOURCE: THE NEW YORK TIMES

NATIONAL

Communication towers attract, kill birds

According to the American Bird Conservancy, communication towers kill up to 50 million migratory birds each year. The U.S. Federal Communications Commission (FCC) took note, and is considering making the towers safer for birds. In 2002, the conservancy, Forest Conservation Council and Friends of the Earth filed a suit against the FCC, asking the commission to mandate safety measures for the communication towers. According to the conservancy, most of the deaths occur during migratory season. Safety lights in the towers attract the birds. The conservancy released a report that found the towers kill 230 different bird species. To make the towers safer for bird migrations, the conservancy

suggested putting antennas on existing structures and using red or white strobe lights instead of solid or slow pulsing lights that confuse the birds. The FCC agreed to look into the issue, but it is unclear when they will make any changes.

SOURCE: THE SEATTLE TIMES

Activists participate in Day of Action on Global Warming

On Nov. 5, over 300 residents of southern Florida used their bodies to send a message to their congressional candidates Ron Klein and E. Clay Shaw Jr. As part of the International Day of Action on Global Warming, the Floridians created a mass aerial art image on the beach in Dania, Fla., of flooding in the state and a drowning human with a message reading "Save Our State, Stop Global Warming!" The event coincided with the beginning of the United Nations meeting on global climate change, and came only three days before midterm elections. The event was a part of Project Hot Seat, a Greenpeace project aiming to turn members of congress into advocates of global warming solutions.

SOURCE: GREENPEACE.ORG

Solar power interest heating up

Interest in solar power is increasing across the nation as a wide variety of people, from environmentalists to bankers, are gathering to discuss an economically viable source of power. Former corporate buyout specialist Travis Bradford is the man responsible for organizing these "solar salons" held throughout the United States. Bradford is the author of the book "Solar Revolution," in which he argues that an increased use of solar energy and a decrease in fossil fuel consumption will occur due to economic rather than environmental reasons.

Bradford's "solar salons" serve as venues where those in the solar industry can network with business owners to discuss converting to solar energy. Meetings are generally invite-only and geared toward businesses rather than homeowners due to high initial installation costs for solar power.

SOURCE: REUTERS NEWS SERVICE

Farmers cash in crops for carbon credits

Farms across the Midwest are taking action to fight global warming and are earning a few extra bucks in the process. Approximately 1,700 farmers have enrolled in programs that assign "carbon credits" to their crops based on their ability to absorb carbon dioxide through photosynthesis. A farm can earn about \$1.50 per acre of "no-till land" and \$2.50 per acre of "land seeded to grass or alfalfa." The Chicago Climate Exchange is the first and only greenhouse gas reduction and trading system in North America to be legally binding. The exchange has approximately 200 members, from Fortune 500 companies to individual states such as New Mexico and Illinois. Farming groups across the country such as the National Farmers Union are emulating this system, and encouraging their members to sign up.

SOURCE: ENVIRONMENTAL NEWS NETWORK

Ecologist finds one square inch of silence

Acoustic ecologist Gordon Hempton found something special in Olympic National Park: the true silence of nature. Hempton discovered an area in the park where there is no sound of airplane traffic, campground generators or over-chatty hikers. He took it upon himself to set up a nonprofit organization to help pay for monitoring and protecting the site.

"I've circled the globe three times in pursuing silent places," he said. "Olympic National Park is the most sonically diverse, and is the national park that has the longest periods of natural quiet that I have observed."

His independent research project has drawn pilgrims who follow the detailed directions of his Web site, onesquareinch.org, more than three miles to the place where they sit and listen.

"Quiet is going extinct," Hempton said. "I want to find a quiet place and hang on to it and protect it."

SOURCE: SEATTLE POST-INTELLIGENCER

Seattle company provides incentive for using sustainable transport

In an effort to curb the increasing rate of car commuters, Amgen Inc. of Seattle is spending \$1 million annually to encourage its employees to commute via bicycle. The company has 1,000 employees, averaging approximately \$1,000 per head for the program. Amgen gives employees benefits such as showers, lockers, bike tune-ups and gift certificates that are redeemable at local stores such as REI. This led the EPA to list Amgen and other Seattle-area employers as the best employers for commuters.

SOURCE: SEATTLE POST-INTELLIGENCER

Squalicum Mountain may be protected by federal program

Nearly 700 acres of forest land atop Squalicum Mountain is slated for development within the next year. This is much to the dismay of Squalicum Valley residents and environmental advocates who are seeking to protect the Lake Whatcom watershed from the pollution occurring as a result of development. In response to the controversy, Whatcom County Council imposed a temporary moratorium to stop development on the mountain. Now the Bellingham City Council, in collaboration with forester Bob Cannon, is in the process of applying for a grant from the Forest Legacy Program to buy the property.

This federal program was developed in 1990 and is funded through the U.S. Department of Agriculture Forest Service. According to their Web site, Forest Legacy grants are issued in order to "protect environmentally important forest lands threatened with conversion to non-forest use." If approved, the grant would pay for 75 percent of the cost of acquiring the \$3 million property from the current owners, and safeguard it as protected forest land. The city would budget and pay for the other 25 percent. The application will be ready for submission in March 2007.

SOURCES: WHATCOM COUNTY COUNCIL MINUTES, FOREST LEGACY WEB SITE, THE BELLINGHAM HERALD

Drayton Harbor road in repair

Two years ago, 2,000 feet of Drayton Harbor Road slid towards the ocean. Erosion, heavy traffic and weather caused the road to collapse. Whatcom County engineers will spend over a million dollars repairing the road running along the shoreline near Blaine. The project has experienced delays; however, reopening is expected by August 2007. Police and firefighters express concern because the road is the main connector of Blaine's upper and lower halves and inaccessibility leads to slow emergency response. The old method of piling boulders to prevent erosion will contribute to shoreline ecosystem destruction, therefore the state is searching for solutions to help restore habitat while maintaining the road.

SOURCE: THE BELLINGHAM HERALD

"Sudden" city may become reality

Despite some Whatcom County residents' concerns, the initiative to make Sudden Valley its own town is one step closer. Bill and Barbara Audley gathered 270 signatures from people who approve the idea of making Sudden Valley a city. Some argue urbanization of the area will endanger the Lake Whatcom watershed. The next step is to have a public hearing where the issue will be considered by the Whatcom County Boundary Review Board. Once the signatures are submitted, Sudden Valley will have the right to a hearing which will decide if an election will proceed.

SOURCE: THE BELLINGHAM HERALD

Salmon summit features local research

Swimming into Bellingham Nov. 2, the eleventh annual Salmon Summit featured more than 30 presentations on the status and future of local aquatic resources.

The Nooksack Recovery Team, a nonprofit organization dedicated to restoring salmon habitat in the Nooksack watershed, sponsored the conference, which focused on watershed restoration efforts in Whatcom County.

Dorie Belisle's presentation for the Whatcom County Agriculture Preservation showcased the efforts to restore Ten Mile Creek and its surrounding watershed, which is located just north of Bellingham and east of Ferndale. The project, founded in 2001, was meant to create a sense of community around the watershed by getting the residents and farmers whose land the creeks ran through to participate in their restoration, which included removing invasive grasses and planting trees. The creeks can provide habitat for coho, chum and Chinook salmon, but the project is not just about the health of local fish. Healthy watersheds make for healthy people, Belisle said.

"Surface water is drinking water - it's all connected," she said.

While creek restoration is important, it is essential to take into account the needs of the residents, especially farmers who own land near the creek, Belisle said.

"Every landowner has their own plan," she said. "We find out what the owner needs, and what the creek needs," Belisle said.

Belisle said the project looks for win-win solutions for both farms and fish, because the farms are necessary to the future of the watershed.

"The alternative to farming is development, and development puts more pressure on resources," she said.

STORY BY ANDREW LAWRENCE

CAMPUS ROAD BLOCK



by Meghan Arbuckle
photos by Carla Mingione

A few more students are huffing it to campus this year on foot – or by riding a bike, a Whatcom Transportation Authority (WTA) bus, or by car. Despite providing nearly 200,000 rides for students, faculty and staff during the 2005-2006 school year, Western's daytime shuttle ended June 16, 2006 due to budget constraints, according to the official announcement released by Western's Parking and Transportation office.

According to the WTA Web site, at least five routes service the same stops along Bill McDonald Parkway that the shuttle abandoned. But with an increase in the price of a full year academic bus pass from \$50 to \$90, it seems that students were hit with a one-two transportation punch.

The cancellation of the shuttle and increase in the price of the bus pass makes choosing alternative transportation more difficult for many students. However, an increase in price was inevitable, said Kevin McClain, Associated Students (AS) Vice President of Campus and Community Affairs. With the recent purchase of the off-campus Lincoln Creek Park and Ride site, the Parking and Transportation Office at Western could no longer afford to fund the Route 90 service, which operates between Lincoln Creek and campus. The WTA stepped in to preserve the route, but because bus fares rose citywide, student pass prices increased as well.

Though a lack of funds was the official reason for canceling the shuttle, a lack of student interest also played a role.

"I'm in support of not having [the shuttle] right now," said Jesse Jarosz, Western senior and organizer of Western's Sustainable Transportation club. He said the shuttle wasn't good for the small campus, and that it didn't fit well into long term planning goals.

If students expressed more interest in maintaining shuttle operation, the AS Board would have looked into instituting a student fee to continue service, McClain said. The board

already made a \$50,000 contribution in 2005 to partially fund shuttle service throughout 2005 to 2006 with the understanding that the university would look for alternate sources of funding for subsequent years. However, the search was unsuccessful.

"When we were looking for permanent, sustainable funding for the shuttle none was forthcoming," said Carol Berry, Western's alternative transportation coordinator.

A proposed student transportation fee is one option to address the availability of student transit choices while widening sustainable transportation opportunities.

Chartered in November 2005, the AS Transportation Advisory Board is studying to improve campus transportation. The committee hopes to put a proposed Alternative Transportation Fee Initiative to a student vote next spring. The AS Board voted on the proposed fee last year, but rejected it 5-2.

The transportation fee would add approximately \$25 to each student's quarterly tuition, McClain said, up from the \$19 fee the board voted on last year. The fee would provide a bus pass for every student as well as improve night bus service. A third portion of the fee would be used to support sustainable transportation efforts, such as providing more bike racks on campus and improving sidewalks for pedestrians. The mandatory fee would be noticeably cheaper than an individual purchase of a bus pass, Berry said.

"Basically [it's] buying in bulk," she said.

The University of Washington put a similar system into action in 1991. The U-Pass is an inclusive transportation package granting access to a variety of transportation choices, among them bus, train and night shuttle service. Since implementation of the U-Pass program, UW has had a 20 percent student population increase, yet counts 2,000 fewer cars on campus, said Peter Dewey, assistant director of transportation services at UW.

How does Western compare to other state schools?

UNIVERSITY OF WASHINGTON	U-Pass, opt-out program (not mandatory), \$44 per quarter, includes access to Metro, Community and Sound transit buses; commuter train, discounted carpool parking; free night shuttle, among other amenities.
WASHINGTON STATE UNIVERSITY	Mandatory fee, \$15/semester, includes access to Pullman Transit buses, recently implemented an experimental late night shuttle.
THE EVERGREEN STATE COLLEGE	Mandatory fee, \$1.10/credit, with a \$13.20 max per quarter, provides access to all Intercity Transit buses.

"As the population has gone up, demand for parking has gone down," he said.

The UW is not the only publicly funded school in Washington to implement a student fee to fund alternative transportation options

for students. According to their respective Web sites, Washington State University and The Evergreen State College have similar fees

built into their tuition. Western is one of three public universities in Washington that has still failed to adopt a fee.

As an institution recognized by the Environmental Protection Agency as one of the nation's top purchasers of green energy, it is surprising that Western lags behind in providing comprehensive sustainable transportation options.

Including a transportation fee in student tuition is not a new idea. According to a study released by Western's Campus Parking and Transportation in August 1992, 68 percent of students surveyed that year indicated they were "very interested" in including a bus pass as part of tuition. Fourteen years later, students are still buying bus passes individually as the debate continues.

Students meet the question of a fee with mixed feelings.

"I think [I would] if it was \$25, since we're paying \$90 now," Western sophomore Burnley Dluhosh said, when asked if she'd be willing to pay a quarterly fee. Others disagree.

"I don't think I should have to pay for everyone," Western junior Michael Stewart said. "It's not worth the extra money since I walk anyway."

A difference between Western's proposal and the 15-year-old U-Pass program is the political support. The UW administration fueled the U-pass proposal while transportation agencies and students supported the program. At Western, students have been the force behind fee support, while the administration remains in the background, McClain said.

"Most of the research has been done by students," he said. "If the students decided to drop the idea of a transportation fee, then [the administration] would probably drop it too."

Another proposed solution to Western's transportation dilemma is to build a parking garage. With only a thirty-year life span, and a cost of nearly \$25,000 per parking stall, such a project is extremely expensive, McClain said.

Furthermore, 16 percent of Western's 177-acre central campus is already comprised of parking surfaces and access to them, Berry said. A parking garage would consume even more acreage on campus, taking away from open space and room for academic buildings.

Despite slow progress, some statistics are promising. According to a survey published in the Transportation Planning Initiatives Task Force report for 2005-2006, driving alone to campus decreased 16 percent between 1992 and 2003. During those same years mass transit use increased by 22 percent.

"It's a big job," Berry said. "It doesn't happen in one year, or four."

It's a job that Jarosz, Berry and McClain are committed to, as shown through their work in sustainable campus transportation projects.



Western senior Jesse Jarosz counts the number of bicycles next to Wilson Library. The counting provides an estimate of bicycle commuters, and is informative in the funding and placement of future racks on campus.


"The students can prioritize the changes that happen on campus," McClain said.

However, active student awareness is difficult to create, Jarosz continued. He said students need more transportation information.

"I don't think I've seen a big effort to get information out," Western senior Leslie Anton said.

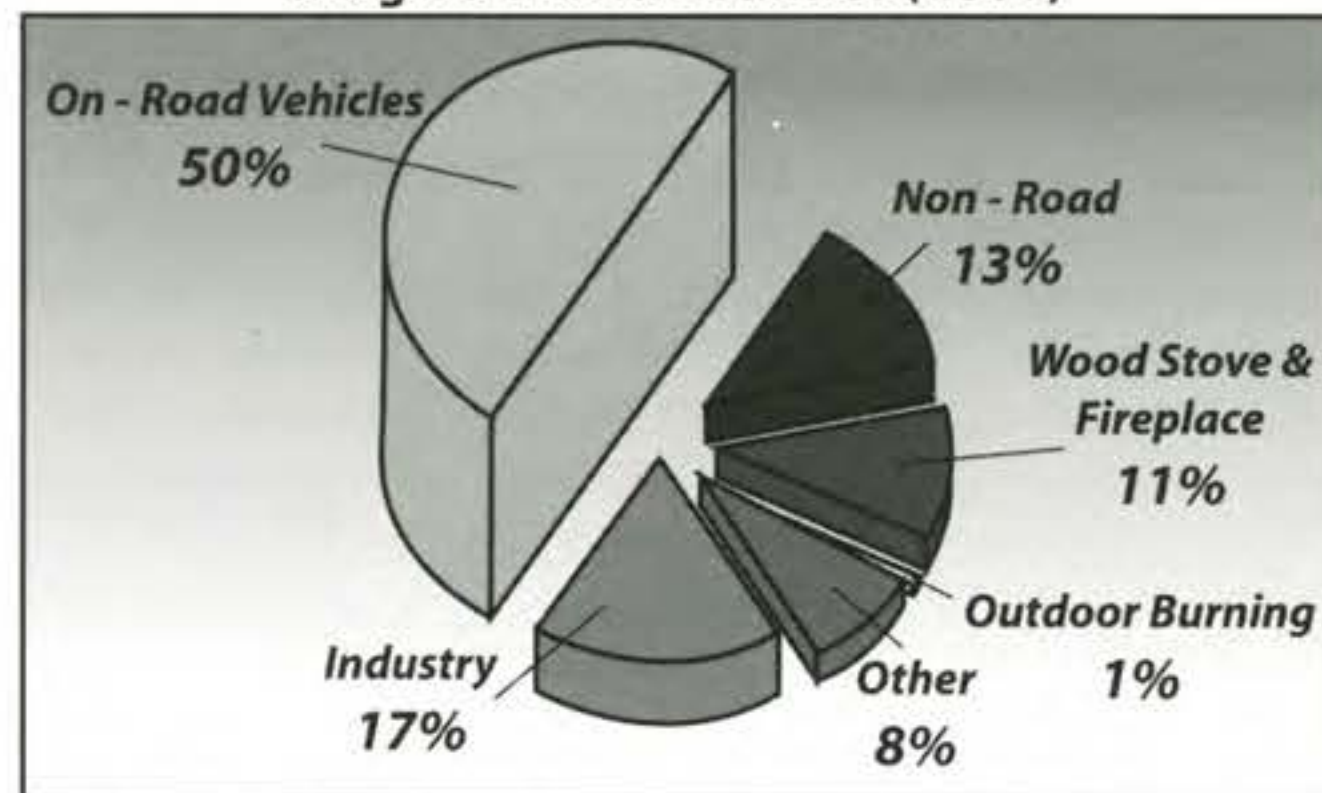
She said she feels student advocates, rather than the university, are making the most effort to spread the word about transportation issues.

Western has a student enrollment of about 13,000 for the 2006-2007 school year and approximately 3,900 students live on campus. This means that 9,100 students are traveling to campus each day, each with individual transportation needs.

Western no longer has the option to drag its feet on the road to efficient and sustainable transportation. Now is the time to take decisive action or concede to being left in the dust. 

Meghan Arbuckle studies English and French. This is her first published piece.

Carbon Dioxide sources Whatcom, Skagit & Island Counties (2002)



Source: Northwest Clean Air Agency

UPPER LEFT: A full commuter parking lot at Western. Alternatives to driving include carpooling, riding the bus, walking, or biking.



on the waterfront

a new opportunity for Bellingham's downtown

by Andrew Lawrence

photos by Beckie Rosillo

Stand between several of the large, dilapidated brick buildings in the heart of this industrial wasteland, and it's difficult to imagine this place as the future site of anything, especially Huxley College of the Environment. The landscape is dotted with relics of this site's long industrial past: a large, rusting sphere that was a former acid storage tank, and a building containing what looks like the blade from a giant food processor, a machine that could once reduce an 8-foot-wide log into tiny chips in seconds. Yet Western may move some of its facilities onto this very site.

This 137-acre waterfront property, located adjacent to downtown Bellingham and rivaling it in size, is the former site of the Georgia-Pacific Corporation, used for pulp and paper operations since 1925. Before closing in 2001, GP discharged large amounts of mercury and other hazardous chemicals into the waters of Bellingham Bay. Despite the risks involved, the Port of Bellingham purchased the site for \$10 in exchange for taking over its cleanup, which will exceed \$40 million in cost.

Over the next 20 years the port plans to develop the site with stores, condominiums, light industry, parks and a marina. Redevelopment could bring hundreds of new jobs, thousands of new residents and tourists, and could make the property worth close to \$1 billion. Development could also discourage urban sprawl by concentrating growth in the downtown

area. But with so much money at stake, some groups are raising concern that environmental factors may take a backseat to development.

The main sources of pollution on the site came from the chlor-alkali plant, built in 1965 to produce chlorine and caustic soda. GP pumped the mercury-tainted wastewater from this process directly into the bay until construction of the aerated stabilization basin, built in 1978 to contain the wastewater.

According to a report by Huxley student Nolan Grose, GP discharged an estimated 17,000 pounds of mercury throughout the 1960s and early 1970s, along with high levels of other chemicals such as polychlorinated biphenyls (PCBs).

An individual can accumulate mercury from contact with polluted soil or water, or by eating contaminated seafood. According to the Environmental Protection Agency's Web site, mercury can greatly impair neurological development in unborn babies and children. PCBs can cause cancer, disrupt hormone functions, harm the immune system, and are detrimental to children's development. Finding out the location and amount of mercury, PCBs and other chemicals is one of the first steps

in eventually cleaning them up.

"These documents here represent \$5 million worth of research," said Mike Stoner, the director of environmental programs for the Port of Bellingham, pointing to one of many large stacks of paper in his cluttered office. "This is a chance to rebuild our waterfront to a new standard of environmental stewardship."

RETEC, an environmental management consulting firm based in Seattle, prepared the documents with oversight from the Washington State Department of Ecology. The documents, along with public input, will form the basis for Ecology's selection of a cleanup plan, said Lucy McInerney, Ecology's official in charge of the GP project.

The study evaluated eight possible cleanup scenarios ranging in cost from \$8 million to \$146 million. The port is advocating two of those alternatives, with costs of \$42 and \$44 million, respectively, Stoner said. The plans call for the removal of 5 million cubic yards of contaminated material to an upland disposal site, possibly in eastern Washington. Also included in the plan is restoration of approximately one mile of public beachfront, creation of over 30 acres of aquatic habitat, and complete dredging of the aerated stabilization basin to create

"You don't get too many chances to double the size of a downtown through redevelopment."

-Nicholas Zaferatos, associate professor of planning & development at Huxley College of the Environment

“This is a chance to rebuild our waterfront to a new standard of environmental stewardship.”

-Mike Stoner (below), director of environmental programs for the Port of Bellingham

LEFT: Over the next 20 years, the Port of Bellingham plans to develop the former site of Georgia-Pacific with stores, condominiums, trails and a marina. Several cleanup scenarios are being evaluated by the state's Department of Ecology.

BELOW: Many buildings on the former Georgia-Pacific site will be torn down, such as the white building below, prior to cleanup and development.



government organizations are involved in the process.

“People read things in the paper, and it looks like it’ll happen tomorrow,” he said. “I would like to blink my eyes and see what this looks like in 2026, but governments don’t move at greased lightning speed.”

The next step in the development process is a 60-day public review of the RETEC study, McNerney said. After any changes are made, Ecology will select a cleanup plan, put it out for another 60-day public review, and then finalize the plan.

In order for the project to succeed, Stoner said he feels that bold leadership is necessary.

“If this project gets mired in indecision, that could cause it to fail,” he said. “This is a momentous change for the community.”

Smith said this long-term project is one of the most unique in North America.

“Some people see the site as it was, some see it as it is now: Berlin 1945. It’s very hard to see what it can be,” Smith said, pointing to an artist’s rendering of the site 20 years from now. “Of course it will be difficult. There will be challenges and obstacles, but as a society we can’t let these difficulties stop us from achieving a vision like that.”

Looking over the crumbling and pitted buildings to the city and university, the port’s vision of the site’s future seems as distant as the mountains. The project looms large over the city; if it is not done right, this missed opportunity could haunt the city forever. But with a proper mix of caution, vision, public participation, and government implementation, its transformation can become a perfect example for other cities to follow. **P**

Andrew Lawrence studies journalism. He has been published in *The Western Front* and *What’s Up* magazine.

a marina.

A highly contested issue of the redevelopment is the question of what to do with the basin, a 28-acre enclosure built to treat wastewater in compliance with the Clean Water Act. That issue was central to an initiative regarding cleanup of the bay, later thrown out in Whatcom County Superior Court.

Anna Evens, chair of People For a Healthy Bay and acting director of the Bellingham Bay Foundation, said she objects to what she feels are the port’s cleanup priorities.

“It’s a question of whether the port’s desire for a marina should dictate the terms of the cleanup,” she said.

But Leo Bodensteiner, an associate professor at Huxley, whose class performed a study on the effects of converting the basin into a marina, said he supports the port’s vision.

“Since it was once a marine environment, it should be returned to the environment,” Bodensteiner said. “A park only benefits people.”

Cleaning up the site is only half the opportunity. One study prepared by port and city officials states the project will add 3,000 residential units and up to 4,800 jobs to the community. According to a November 2004 study by the Bellingham Community

Forum on Growth Management, the city is expected to gain over 30,000 new residents in the next 20 years. The question of where to put those people is on the mind of Nicholas Zaferatos, associate professor of planning and development at Huxley.

“This is a chance to kill two birds with one stone,” he said. “You don’t get too many chances to double the size of a downtown through redevelopment.”

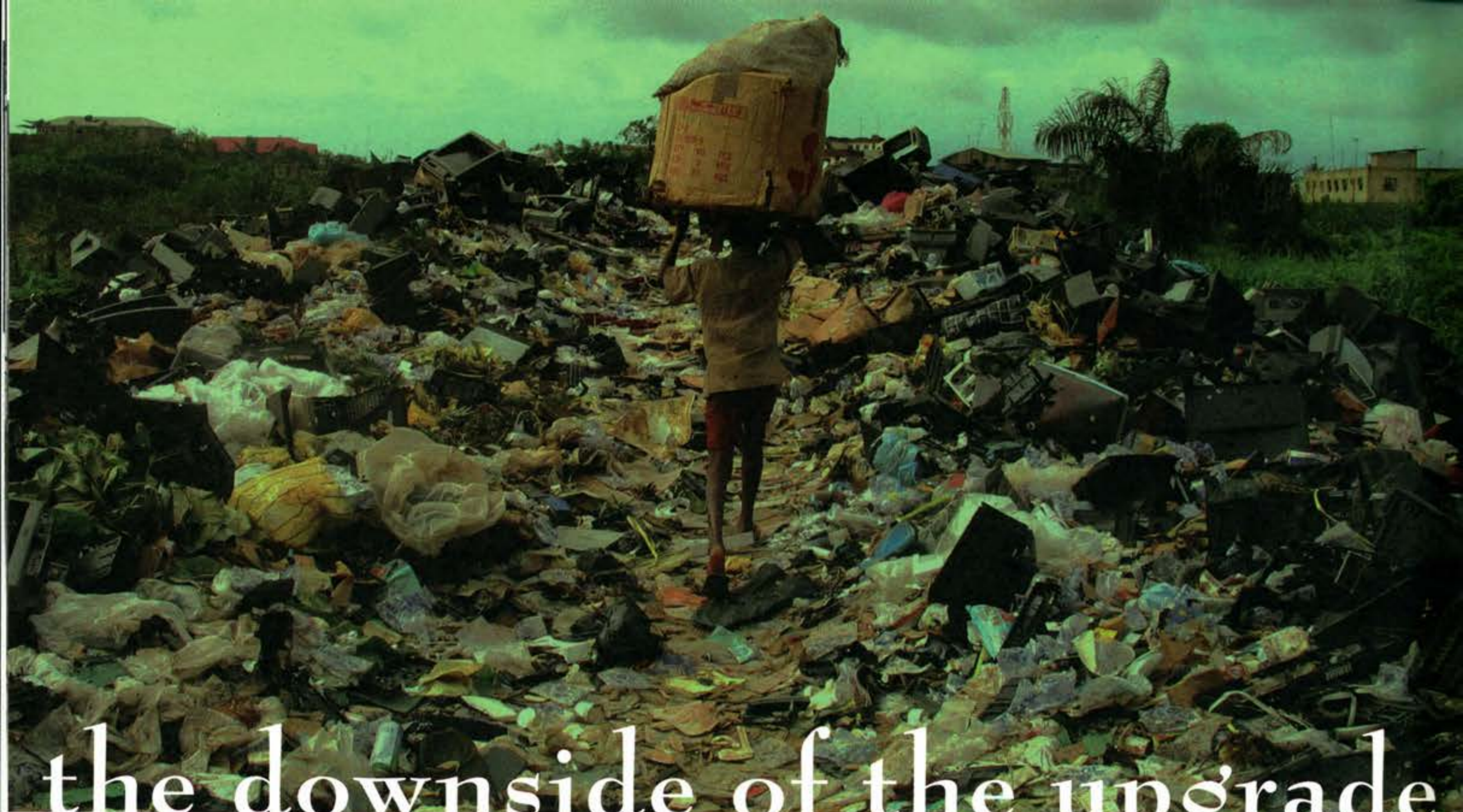
One of the most damaging aspects of new development through urban sprawl is the need for transportation from these new areas to the city center, Zaferatos said. Redevelopment of this centralized site has great potential for minimizing the impacts of transportation, since many new residents may walk or ride the bus.

Faculty and students will have to get from the main campus to the site, so transportation will also be key to determining whether Western will have a presence on the waterfront, said Brad Smith, Dean of Huxley and member of the Bellingham Waterfront Advisory Group.

“The transportation network would have to be seamless,” he said.

While Smith said he thought cleanup of the site would be effective, he stressed that moving Huxley to the site will not happen overnight, as many





the downside of the upgrade

When upgrading your computer means downgrading the environment

by Ashley Gundermann

The town of Guiyu, located in the Guangdong Province of China was once a poor rice-growing community. Since 1995, the town has been transformed into a booming electronic recycling center. Specialized shelters and yards for recycling operations now take the place of rice fields. Villagers who once earned their income through farming now migrate to Guiyu from surrounding regions for work. In Guiyu, where it's more profitable to smelt circuit boards for gold than mine it from the earth, the villagers can earn \$1.50 a day. This source of income, however, comes at the cost of handling toxic waste.

Villages like Guiyu in developing countries are becoming the destination for electronic waste from developed nations. Electronic waste, or "e-waste," which includes electronics such as computers, cell phones, and household appliances, is the fastest-growing portion of the waste stream in the United States.

Components of e-waste pose threats to both environmental and human health, making proper disposal crucial. Many facilities across the United States offer e-waste recycling, something that appears to be environmentally sound, but can be misleading. Many e-waste recycling facilities do not process their e-waste properly, or they may ship it overseas. According to the National Safety Council, 80 percent of e-waste collected for recycling in the United States is shipped to developing nations. These nations willingly take the e-waste because of its valuable components such as gold and copper, despite serious impacts that result from improper handling.

"People are willing to pay people to take away their waste," said Jim Puckett, coordinator of Basel Action Network (BAN). "They think

it's environmentally sound, and brokers load up containers and ship it to developing nations and get more money at the back end."

The network is a Seattle-based, nonprofit organization that seeks to protect the world's poorest nations from toxic dumping.

"They can do this because the government does not control this export in any way shape or form," Puckett said.

The United States is the only developed nation that has not ratified the Basel treaty. Initiated in 1989, the treaty bans the exporting of hazardous waste to undeveloped countries. To date, 168 nations ratified the treaty, said Sarah Westervelt, toxic research analyst for BAN and author of "Exporting Harm," a report on e-waste and exporting.

In 2002, the leaders at BAN set out to find what e-waste exporting looked like. With the support of Greenpeace China, BAN conducted an investigation of toxic dumping in Guiyu. The network photographed and filmed the region, collected soil, sediment and water samples. They observed that electronic materials such as monitor glass, circuit boards and toner cartridges were dumped in surrounding fields, wetlands, rivers and irrigation banks. The investigation uncovered severe water and soil contamination. The lead in the drinking water was 2,400 times the World Health Organization's acceptable amount.

According to "Exporting Harm," the health effects of lead include damage to the central and peripheral nervous systems, blood systems, kidney and reproductive systems.

Lead mimics calcium and will remain in the body for approximately 35 days, then is stored in the bones. When affected women who have lead in their bones go through menopause, their body will pull the cal-

"They don't do any recycling. It's basically waste distributing."

-Jim Puckett, coordinator of Basel Action Network

cium out of their bones and will extract the lead, which can result in lead poisoning, Westervelt said.

"Too much lead in the body can ultimately lead to death," she said.

Lead also affects cognitive abilities in children. Westervelt said a drop of lead paint the size of a pinhead can cause brain damage in a developing child. The main source of lead in e-waste comes from monitors, which contain 4 to 8 pounds of lead on average.

In Guiyu, the BAN team observed several different specialized operations including printer dismantling, open burning of wires, monitor cracking and dumping, acid stripping of computer chips and breaking apart circuit boards. Residents of a sub village of Guiyu burned wires to recover copper. As a result of the burning, the village is completely covered in black ash residue.

"Wires have Polyvinyl Chloride (PVC) coverings and a copper core, when you burn PVC, you create dioxins and furans which come down in the form of ash," Westervelt said. "Dioxin is one of the most toxic substances known."

While most of the e-waste collected by recycling facilities is exported to developing nations, 31 facilities in the United States, four of which are in Washington state, have taken the BAN pledge, promising not to export hazardous e-waste to developing nations, said Yuka Pakamiya, researcher and coordinator of the Reduce, Reuse, Recycle, Responsibility program at BAN.

"The number of facilities that have not taken the BAN Pledge is in the thousands," Puckett said. "They don't do any recycling, it's basically waste distributing."

The RE Store, a non-profit organization in Bellingham that recycles and sells building and home improvement material, provides a local solution for people wanting to responsibly recycle their electronics. ReElectronics, the e-waste recycling program at the RE Store, took the BAN pledge in 2004. The facility was the first nonprofit volunteer-based electronic recycling facility in Washington state. The ReElectronics program follows a "Reuse, Rebuild, Recycle" model where volunteers test the electronics to determine what can be used. Items that can't be reused may be rebuilt or, if necessary, disassembled and recycled. The parts that are to be recycled are then sent to Hallmark Recycling, a Mount Vernon-based company that recycles precious metals, and Total Reclaim, a Seattle-based e-waste recycler.

The ReElectronic's program is showing considerable growth, said Greg Waters, program manager at ReElectronics.

LEFT: A man in Lagos, Nigeria walks through a field of waste where abandoned electronics reside. Eighty percent of electronic waste collected for recycling in the United States is shipped to developing nations, according to the National Safety Council. Photo Courtesy of Basel Action Network, © 2006
BELOW: ReElectronics reuses, rebuilds and recycles electronics donated by the local community, such as this circuit board.

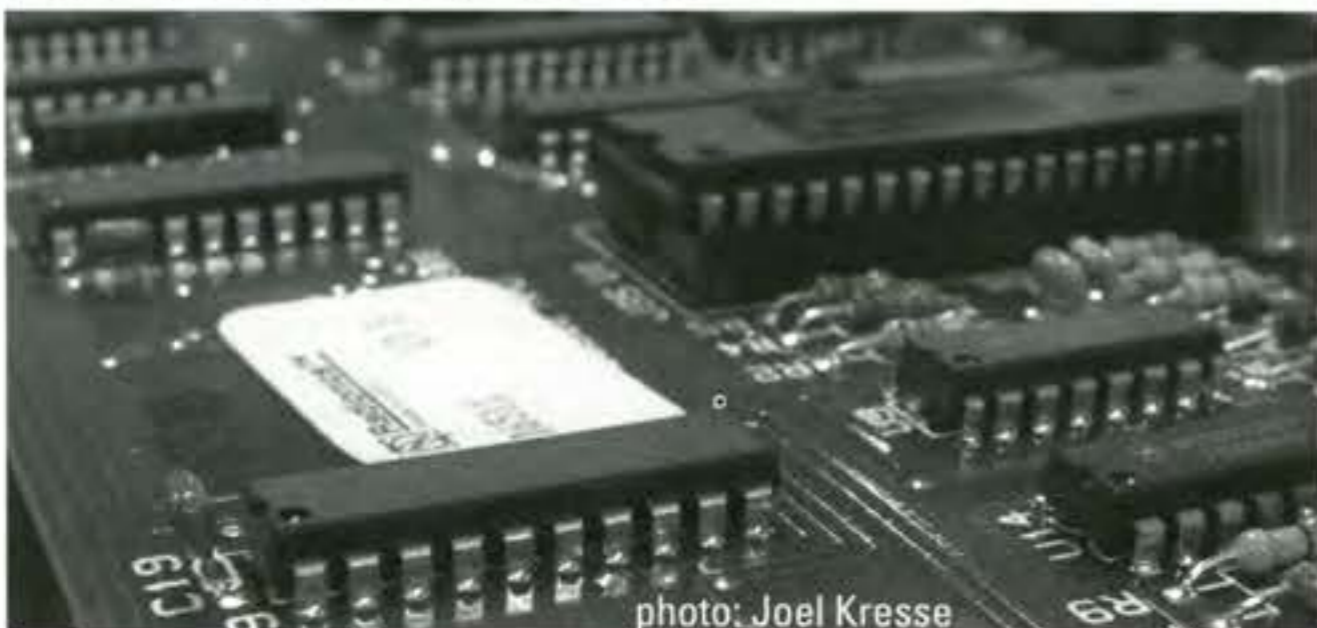


photo: Joel Kresse

How much waste is in 500 million computers?

Plastics	.....	6.32 Billion Pounds
Lead	.....	1.58 Billion Pounds
Cadmium	.....	3 Million Pounds
Chromium	.....	1.9 Million Pounds
Mercury	.....	632,000 Pounds

Source: "Exporting Harm"

"Our first year [in operation] we recycled approximately 40,000 pounds," Waters said. "Last year we recycled 70,000 pounds and this year we are expected to recycle between 90,000 to 115,000 pounds [of e-waste]."

Total Reclaim formed in 1991 and began recycling electronics in 2000. In 2002 they took the BAN Pledge.

"Remanufacturing is what you could call what we do," said Craig Lorch, co-owner of Total Reclaim.


The facility disassembles materials for proper recycling and seeks to remanufacture items that can be remarketed. A global market exists for these materials, and the company still exports some materials in compliance with the BAN pledge, Lorch said. For some materials, such as glass, there are no domestic options for recycling.

"The market for those materials is offshore," he said. "Our first choice is to recycle domestically, our second choice is developed nations, and third choice is developing nations."

Disposal service providers separate e-waste from the waste destined for landfills. According to the Whatcom County Solid Waste Division, waste collected in Whatcom County is sent to disposal service providers, which is then sent to landfills in eastern Washington and Oregon. Recycling and Disposal Services (RDS), one of the two disposal service providers in Whatcom County diverted their e-waste to proper recyclers. The company's program began recycling its e-waste in October. In the first three weeks the program recovered 173 units of e-waste, said Iris Newman, office manager at RDS.

Facilities that do recycle responsibly face economic challenges. The choice to recycle responsibly can be the difference between making money and spending money, Westervelt said.

"It's a choice between paying out of pocket to have it recycled properly and making money by selling it to a broker," she said.

Facilities that have taken the BAN pledge, such as ReElectronics and Total Reclaim, offer consumers the option to safely recycle their electronics and the peace of mind that this e-waste is not threatening the environmental safety and health of people in developing nations. 

Ashley Gundermann is a Fairhaven student. This is her first published piece.

GREEN LIVING

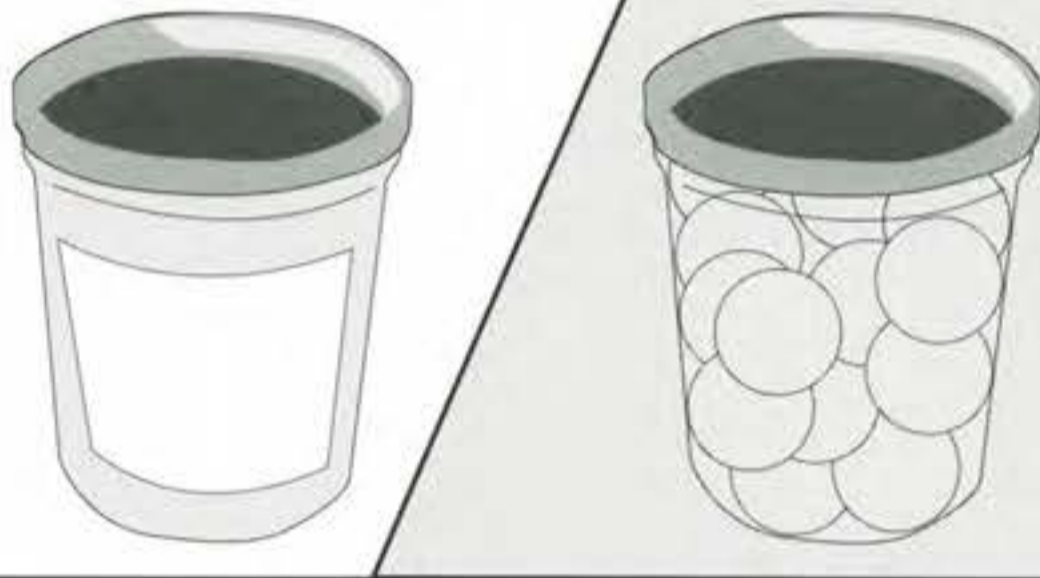
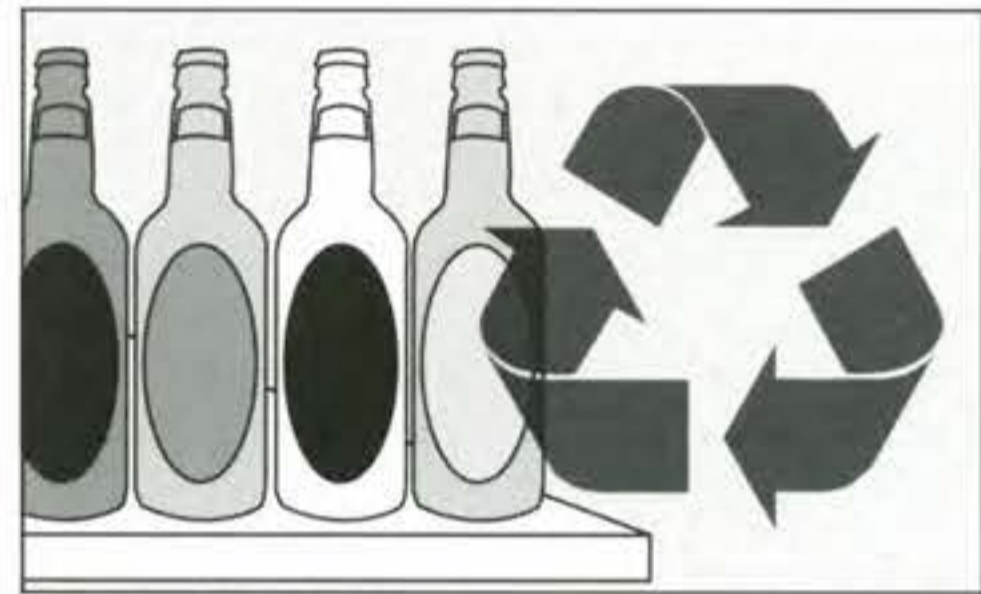
Help Reduce Waste by Using **Less Packaging**

According to North Carolina State University's College of Agriculture and Life Sciences, \$1 out of every \$10 spent at the store pays for packaging and adds up to one-third of all trash thrown away in the United States. Here are suggestions that can help consumers reduce packaging in the waste stream and save a few bucks in the wallet.

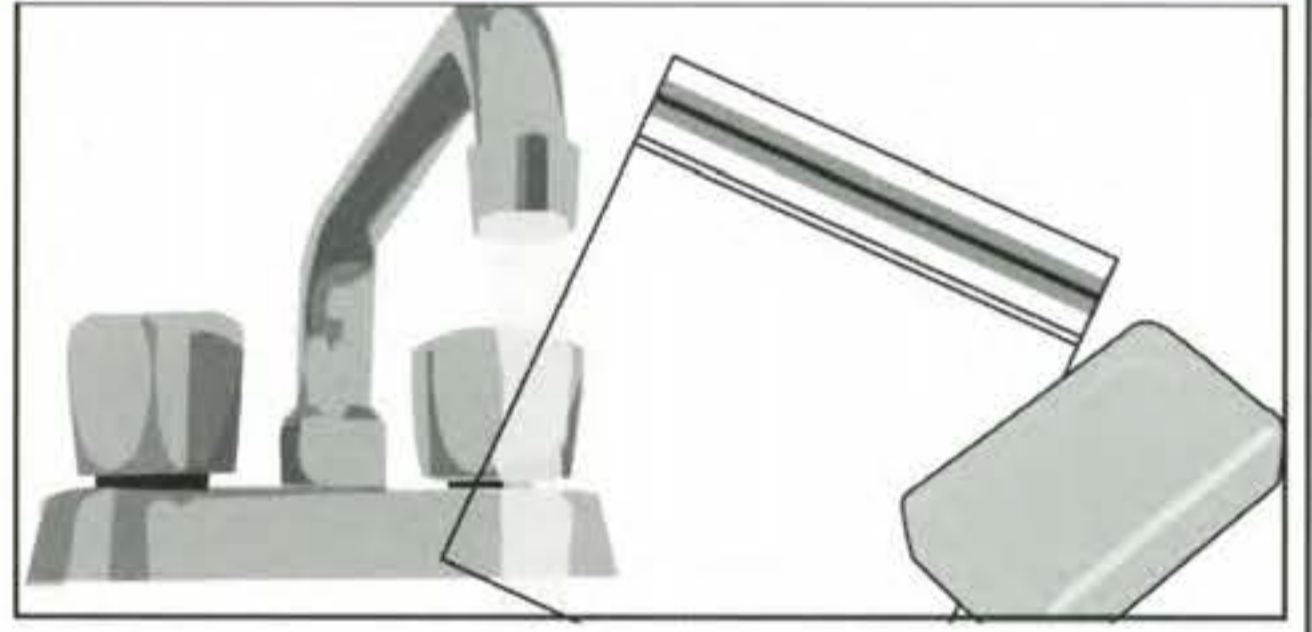
Bring some empty bottles to the store to fill with bulk products such as peanut butter, syrup, and oil. Dry goods such as flour, sugar, rice, pasta, and spices can be purchased in bulk too. Buying in bulk reduces packaging and consumers pay less for the same weight of goods than when purchasing the individually packaged product.



When purchasing a packaged item, pick one with recyclable materials.

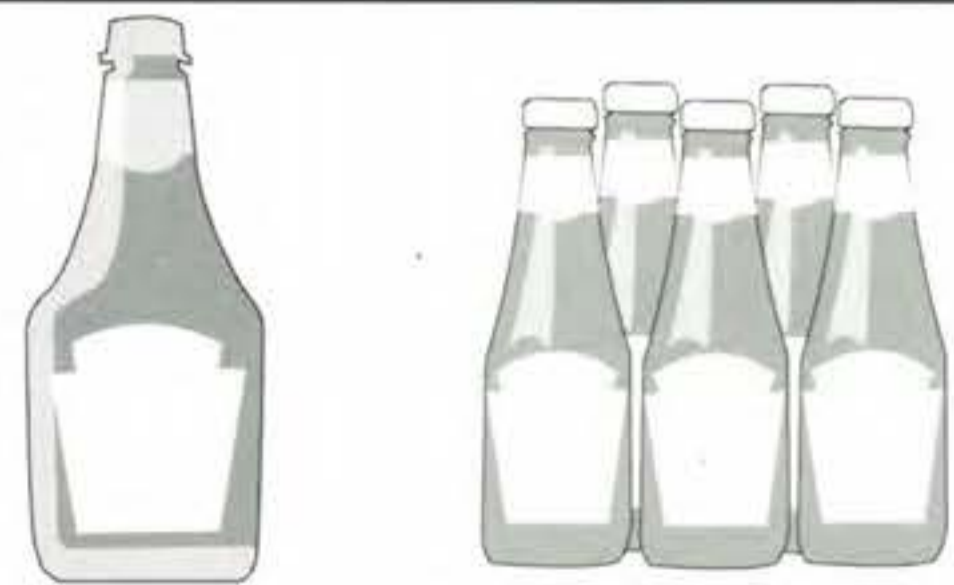
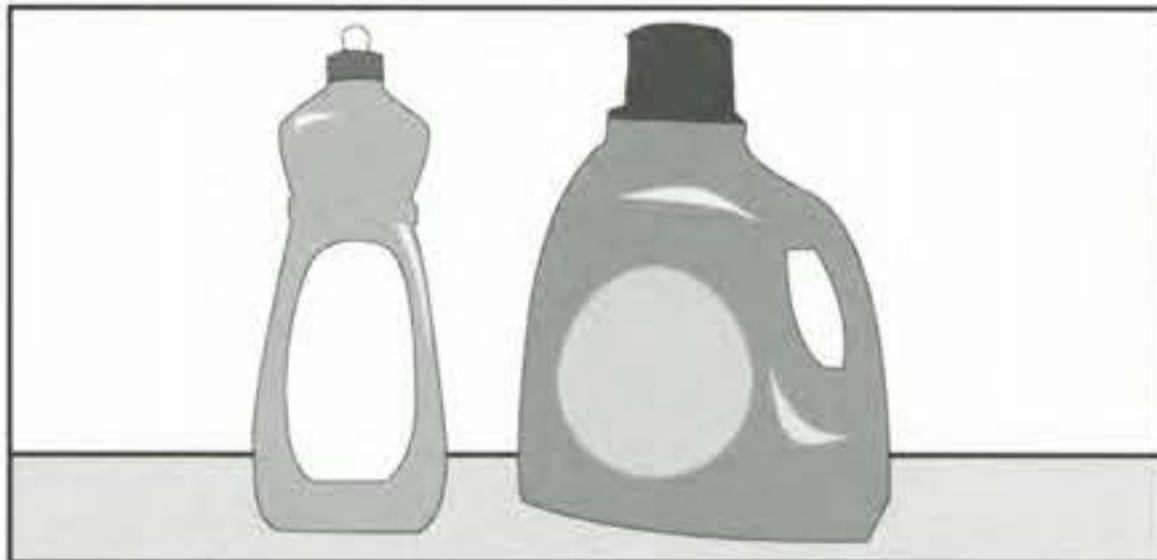


If a product comes with a plastic container, reuse it for storing leftovers.



Reuse plastic resealable storage baggies by washing with soap and water.

Purchase concentrated dish and laundry detergents which use less packaging for the same amount of cleaning power. Refill bottles if available.



Plastic condiment bottles are not recyclable, but are sturdy. Purchase one plastic condiment bottle and refill it from a glass bottle, which can be recycled.

Source: Packaging Choices That Reduce Waste, by the North Carolina State University College of Agriculture and Life Sciences.
<http://www.ces.ncsu.edu/depts/fcs/housing/pubs/fcs421.html>



little mollusc, **BIG PROBLEM**

by Lindsay Budzier

A small ear-shaped shellfish sits on the ocean floor. Bubbles rise out of tiny breathing holes lining its rugged outer shell. The muscular foot is securely anchored to an ocean rock, while its slender tentacles wave gently in the salty water. The animal is small and likely to go unnoticed, except that its coarse exterior conceals valuable meat and a luminous inner shell, making it a prize catch.

Though most people have never heard of an abalone, let alone seen one, this mollusc once flourished in the waters of Puget Sound. The northern pinto abalone is native to this region, with a population spanning the Pacific coast from northern California to Alaska. Native Americans prized abalone for their meat and colorful iridescent shells, and prior to 1996 and sport fishing thrived in Washington state.

Now biologists are trying to bring it back from the verge of extinction.

The pinto abalone is an important part of our environment, said Josh Bouma, a graduate student at the University of Washington who studies the animal. Abalone are marine grazers, meaning they are underwater algae eaters that clear habitat space for other animals. These long-lived gastropods can survive for 15 to 20 years and grow to be 6 inches in length.

"They are really charismatic creatures and really unique. I'm a pretty avid diver and just knowing that there's a possibility of not being able to see them in the future is pretty sad," Bouma said.

In 1982 scientists conducted a dive survey of pinto abalone in the San Juan Islands. In 1991, the Washington State Department of Fish and Wildlife (WDFW) repeated the same survey and results were startling: The abalone population decreased by 50 percent.

By 1994, when the population in Puget Sound decreased another 20 percent, WDFW closed the sport fishery. The pinto abalone population continued to decline despite the closure, and the federal government finally listed the abalone as a Species of Concern.

So few abalone are left in Puget Sound that scientists have trouble locating them for study, said Don Rothaus, a biologist at WDFW. In 2006, WDFW found only 76 abalone at study sites in the San Juan Islands.

Photo courtesy of Josh Bouma. The northern pinto abalone is near the verge of extinction.

While researchers in Washington state explore solutions to revive the dying abalone population, western Canada has enough pinto abalone that they now face a different problem: poaching.

Poaching was a major contributor to the decline of abalone in the Puget Sound as well, Rothaus said, but so few abalone exist along the Washington coast today that it is no longer an issue.

"The U.S. [abalone] population is ten-fold worse than in Canada," Rothaus said.

Although the abalone population along the coast of Canada is also dwindling, the total ban on fishing for pinto abalone in both countries makes the few remaining molluscs a hot commodity on the black market, said Laurie Convey of the Department of Fisheries and Oceans Canada (DFO). In February, a bust in Canada led to the arrest of three poachers possessing 11,000 abalone in the bed of a truck worth \$70,000. Biologists attempted to return the molluscs to the wild but estimate only 25 percent survived, Rothaus said.

The Canadian government is taking new steps to stop poachers and protect what little is left of its abalone population. Canadian scientist Ruth Withler of the DFO developed a genetic testing kit for abalone meat in 2000. Using this kit, DNA from the meat is used to trace the abalone back to the geographical location from which it was taken, Convey said.

The DFO uses this information to prosecute poachers. Poaching fines are often used to fund more abalone genetic testing or finance the abalone hatchery in Bamfield, B.C.

For Washington state however, a more serious obstacle exists, Rothaus said. Abalone are broadcast spawners, meaning a male must release sperm at the same time a female releases eggs, letting ocean currents combine them. For reproduction to be successful abalone must be close enough together to ensure that egg and sperm meet. This phenomenon is known as the Allee Effect. Abalone need to be populated to a certain density in order to reproduce, and currently abalone populations in Puget Sound are not at this level. Therefore, juvenile abalone are not being successfully recruited to replace the aging adult population.

This scenario in effect causes a "Catch-22" for the abalone, Rothaus said.

"You can't have a population increase without successful recruitment, but you can't have successful recruitment without a population increase," Rothaus said.

Other causes of the decline in the abalone population of Puget Sound may include pollution, sport fishing, water salinity, an undiagnosed disease or a natural lull in reproduction, said Brent Vadopalas, a graduate student at the Friedman Laboratory of the University of Washington.

Researchers at the Friedman Laboratory have studied juvenile abalone

in Puget Sound since 2003 using Abalone Recruitment Modules, or ARMs. ARMs look like commercial crab pots and contain a concrete cylinder. Researchers leave the pots at sites where abalone populations once flourished. The scientists used 66 ARMs and surveyed six times over the last three years. However, only three juvenile pinto abalone were found, meaning the abalone are failing to effectively reproduce, Bouma said.

"You can't have a population increase without successful recruitment, but you can't have successful recruitment without a population increase."

- Don Rothaus, biologist at Washington Department of Fish & Wildlife


released, or "out-planted," into Canadian waters. The experiment began in 2003 with the out-planting of 75,000, 8-month-old juvenile abalone. Because abalone take approximately three years to grow large enough to see with the naked eye, no data is yet available to demonstrate how successful the out-planting was, Convey said.

Although no results are available from the out-planting experiments in western Canada the state of Washington, in collaboration with the Friedman Lab, is working to raise money for small scale out-planting studies in the San Juan Islands for February or March 2007, Rothaus said.

There is debate in the scientific community about introducing hatchery-raised abalone back into the wild. These abalone have only a few different parental crosses, meaning the genetics of hatchery-raised abalone may overwhelm the natural population.

Vadopalas said a more natural solution would be to cluster the abalone population to make reproduction more effective.

One thing is certain, Rothaus said: Without human intervention the species will continue to decline.

"If we turn a blind eye every time we lose a species, we lose the richness of diversity," he warned. 

Lindsay Budzier studies communications and journalism. She has been published in The Western Front.

In 2003 Canadian researchers began working on a possible solution. Juvenile abalone raised at the hatchery in Bamfield, Vancouver Island were



This map shows the range of the three species of abalone along the west coast of North America.

Bellingham GOES GREEN

by Page Buono

Thanks to Western Washington University's research and commitment to green energy, both the City of Bellingham and Whatcom County will use 100 percent green energy for city operations beginning January 1.

"It would be difficult to imagine the genesis of the green power challenge without Western's influence," said Alex Ramel, assistant for Cities for Climate Protection.

The green challenge Ramel refers to is a challenge by Sustainable Connections, City of Bellingham and Puget Sound Energy to get 50 new businesses and 1,000 new residents to sign up for green energy.

Derek Long, program and development director for Sustainable Connections, a local organization of businesses and community leaders devoted to sustainable practices, said they have already signed up more than 50 businesses, with some businesses, such as Mallard and Quicksilver, purchasing up to 100 percent green power from Puget Sound Energy.

According to the Sustainable Connections Web site, the reward for meeting the challenge includes a public demonstration of renewable energy, signs on I-5 announcing Bellingham as a "Green Power Community," national recognition from the Environmental Protection Agency and recognition of participating local businesses.

Bellingham municipal services reduced their energy consumption by 64 percent by switching to green power.

"It's a very effective and obvious first step to take," Ramel said.

Ramel is in charge of Bellingham's next steps by creating a climate change action

plan. Bellingham is a part of The International Council for Local Environmental Initiatives (ICLEI), and follows their five-step program.

The first step is a complete inventory of greenhouse gas emissions, which is broken into both a municipal and a community analysis. From that information, projections are made for where the city wants to be. Ramel gave the example of the Kyoto protocol, which requires emissions be 7 percent of what they were in 1990 by 2012.

Washington voters recently passed another example, initiative 937, which requires that 15 percent of electricity for the state's largest utilities come from renewable sources.

The exact numbers of Bellingham's goals are not yet available, but inventory is complete, and the action plan is in draft stages, Ramel said.

The third step is to develop the action plan, the fourth to implement it and the fifth is to maintain and review the progress made.

"We're rolling around between the first and third right now," Ramel said.

Bellingham City Council will review the plan once Ramel completes the draft, which he hopes will happen in the next month.

Once the council approves the plan, their funding and other resources will be thrown more heavily toward already existing local green programs, such as Sustainable Connections.

Long and Ramel both said they think the city of Bellingham and Whatcom

County will act as driving forces for other cities and counties in the area to implement similar programs. Mayor Mark Asmundson and Ramel presented Bellingham's program at a recent regional conference, and Ramel said they received a lot of questions and support.


"I am just waiting to hear in the news that Olympia has jumped on the bandwagon," Ramel said.

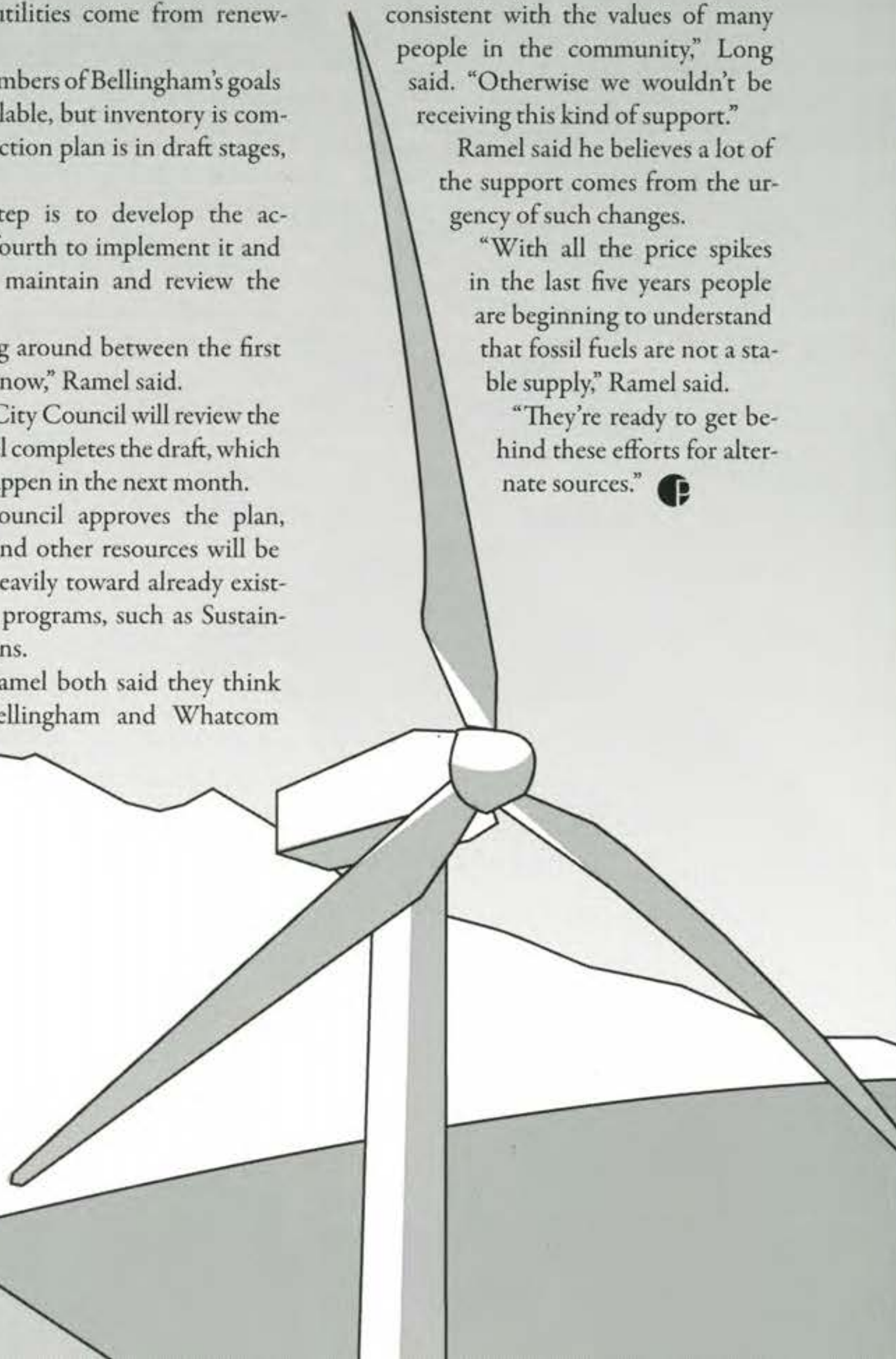
The programs received huge support from the community, and Ramel said the Bellingham City Council is extremely receptive to incoming ideas.

"These programs are obviously very consistent with the values of many people in the community," Long said. "Otherwise we wouldn't be receiving this kind of support."

Ramel said he believes a lot of the support comes from the urgency of such changes.

"With all the price spikes in the last five years people are beginning to understand that fossil fuels are not a stable supply," Ramel said.

"They're ready to get behind these efforts for alternate sources." 

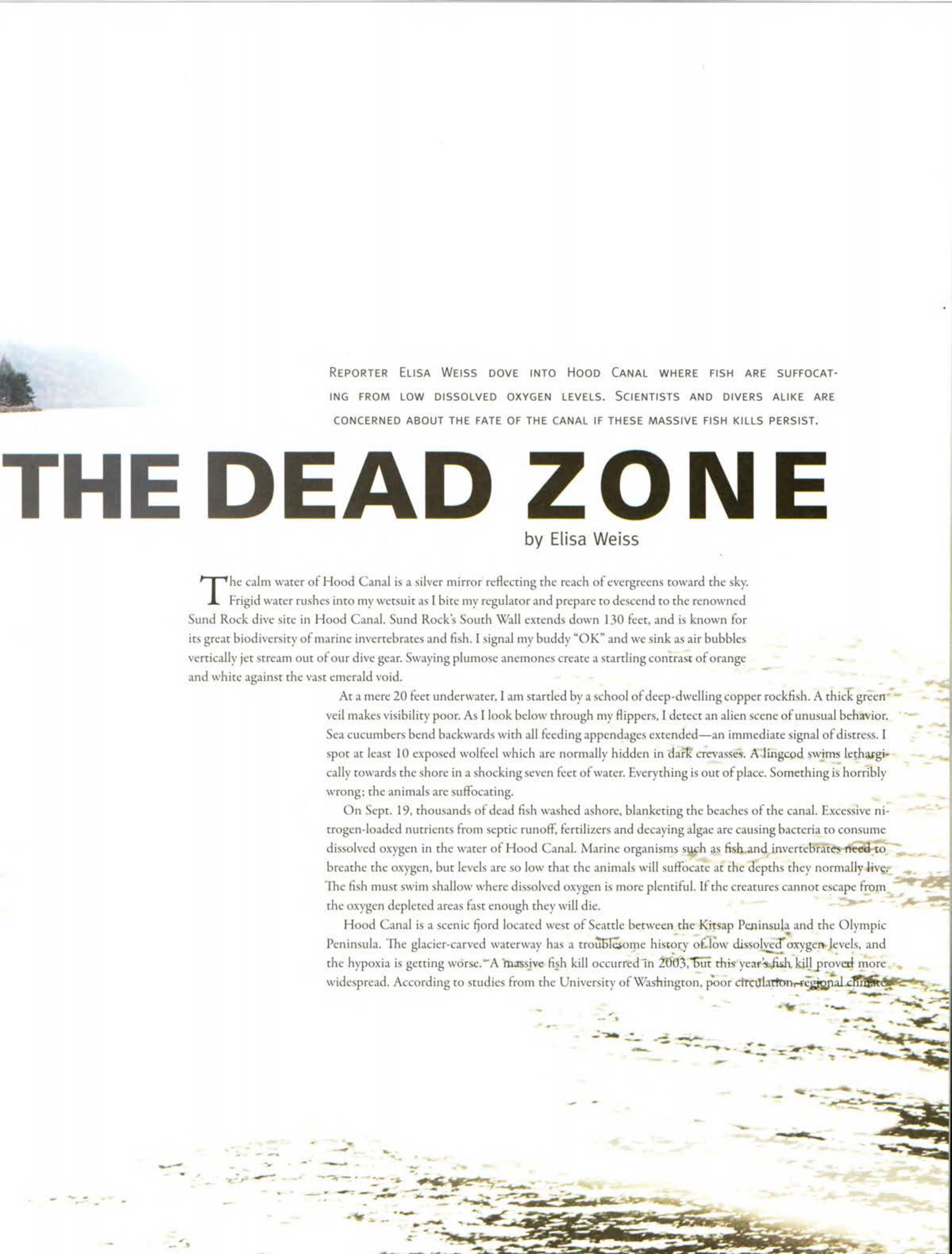




DIVING INTO

TOP: Houses along the banks of Hood Canal are close enough that septic waste and lawn fertilizers can easily seep into the water.
LEFT: Divers prepare to gear up for a plunge into Hood Canal.

PHOTOS BY BECKIE ROSILLO



REPORTER ELISA WEISS DOVE INTO HOOD CANAL WHERE FISH ARE SUFFOCATING FROM LOW DISSOLVED OXYGEN LEVELS. SCIENTISTS AND DIVERS ALIKE ARE CONCERNED ABOUT THE FATE OF THE CANAL IF THESE MASSIVE FISH KILLS PERSIST.

THE DEAD ZONE

by Elisa Weiss

The calm water of Hood Canal is a silver mirror reflecting the reach of evergreens toward the sky. Frigid water rushes into my wetsuit as I bite my regulator and prepare to descend to the renowned Sund Rock dive site in Hood Canal. Sund Rock's South Wall extends down 130 feet, and is known for its great biodiversity of marine invertebrates and fish. I signal my buddy "OK" and we sink as air bubbles vertically jet stream out of our dive gear. Swaying plumose anemones create a startling contrast of orange and white against the vast emerald void.

At a mere 20 feet underwater, I am startled by a school of deep-dwelling copper rockfish. A thick green veil makes visibility poor. As I look below through my flippers, I detect an alien scene of unusual behavior. Sea cucumbers bend backwards with all feeding appendages extended—an immediate signal of distress. I spot at least 10 exposed wolfeel which are normally hidden in dark crevasses. A lingcod swims lethargically towards the shore in a shocking seven feet of water. Everything is out of place. Something is horribly wrong; the animals are suffocating.

On Sept. 19, thousands of dead fish washed ashore, blanketing the beaches of the canal. Excessive nitrogen-loaded nutrients from septic runoff, fertilizers and decaying algae are causing bacteria to consume dissolved oxygen in the water of Hood Canal. Marine organisms such as fish and invertebrates need to breathe the oxygen, but levels are so low that the animals will suffocate at the depths they normally live. The fish must swim shallow where dissolved oxygen is more plentiful. If the creatures cannot escape from the oxygen depleted areas fast enough they will die.

Hood Canal is a scenic fjord located west of Seattle between the Kitsap Peninsula and the Olympic Peninsula. The glacier-carved waterway has a troublesome history of low dissolved oxygen levels, and the hypoxia is getting worse. "A massive fish kill occurred in 2003, but this year's fish kill proved more widespread. According to studies from the University of Washington, poor circulation, regional climate

change and excessive natural and man-made nutrients entering the canal all contribute to the problem. Research performed by Jan Newton, an oceanographer at UW examines shifts in the population of species in the ecosystem.

“We need to gain perspective on how [hypoxia] affects different species,” Newton said. “Each report of species population is more insistent that things are deteriorating.”

Different species suffer in different ways.

The lingcod is a bottomfish that lives in rocky habitat of jagged pinnacles. The fish grows up to 5 feet in length and can weigh more than 80 pounds. Divers are often alarmed to see a lingcod’s head twice the size of their own. The predator waits motionless in a rock cavern and patiently watches for its next meal. Prey such as herring, anchovies, or even other lingcod swim by in graceful ignorance until the lingcod ambushes. But now the powerful, camouflaged body sits wearily on gravel benches in a mere 5 feet of water. The lingcod was the largest species of fish affected by the hypoxia in September, said Wayne Palsson, a biologist from the Washington Department of Fish and Wildlife (WDFW).

“We are not sure why the 2003 fish kill affected mostly rockfish, and this year it was lingcod,” Palsson said. “The kill wiped out about a third of the population.”

Deepwater species of rockfish in Hood Canal have been seen in depths of 20 feet or less, forming super schools for protection against predators like the lingcod.

Another organism affected by low oxygen is spot prawn, the largest shrimp in Washington state. The shrimp grow up to 9 inches in length and are normally found at depths of 180 to 328 feet, according to the WDFW Web site. The spot prawn have traveled to less than 30 feet of water, struggling to survive in less than one-tenth of the depths they are normally found.

While fish can swim away from low oxygen, sea cucumbers are too slow to escape the suffocating water and are the first to die. WDFW closed sea cucumber harvesting due to declining population.

A sudden change of wind triggered the substantial September fish kill, Newton said. After an extremely dry Northwest summer, the lack of rain, sunlight, and addition of open ocean water in the canal all contributed to extremely low dissolved oxygen levels. Northern winds usually quicken the circulation of oxygen in Hood Canal, but during the week of the fish kill unexpected southerly winds put a drag on the surface water, and high dissolved oxygen levels never made it south. Deep water formed a lethal



The black region shows where dissolved oxygen levels are lowest.

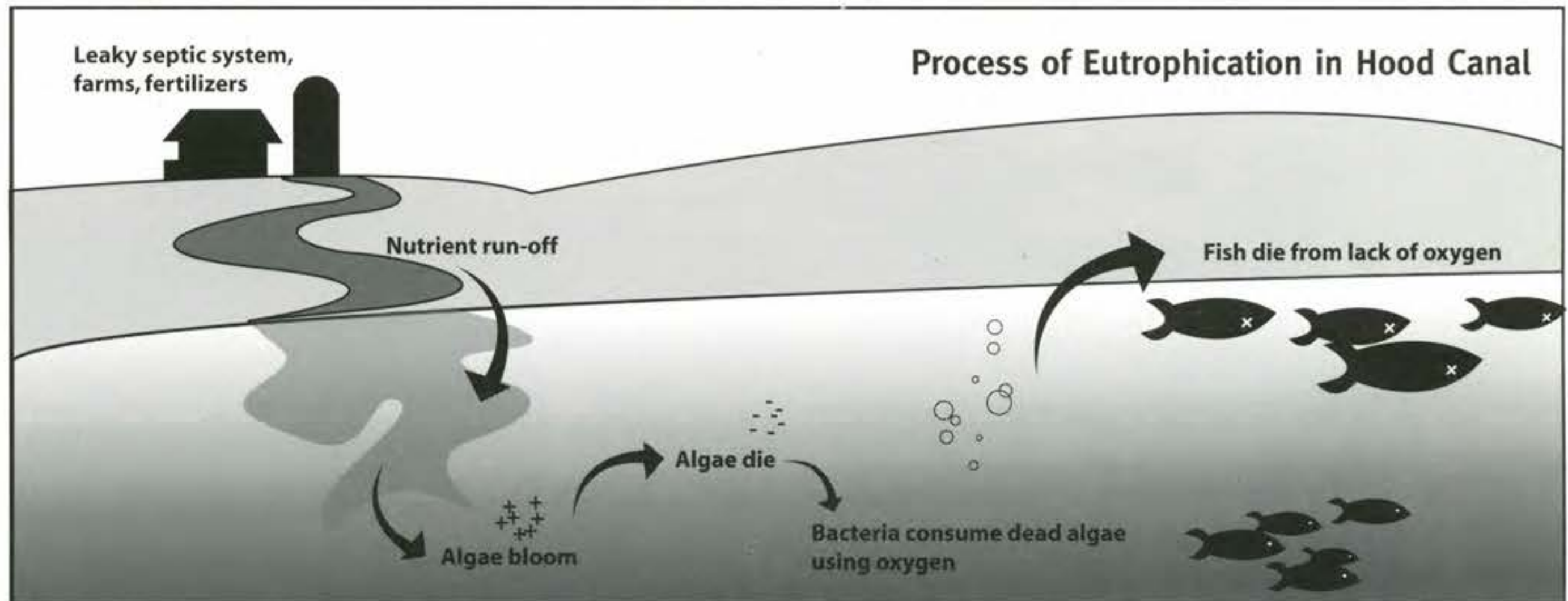
INFOGRAPHIC: KANAKO BLACK

pocket of intolerably low dissolved oxygen.

“The fish rose to the top 10 to 20 meters of the water,” Newton said.

When the wind suddenly pushed the water north instead of south the oxygen-starved water at the bottom of Hood Canal welled upward, herding fish toward the surface and suffocating thousands within hours, Newton said. The dead were washed ashore, shocking the community. Everything from dead ratfish to flatfish crowded the beaches of Hood Canal.

The kill focused light on the problem of eutrophication. The mouthful of a word is a simple biological process that occurs when excess nutrients enter the canal. David Shull, Western oceanography professor, said eutrophication is caused by human population growth, change in watershed use and logging. Major clear-cutting in the 1980s resulted in replacement alder forests that produce nitrogen rich soil in excess, which now bleeds into the canal. Increased development means more septic tanks that often leak sewage into the canal. Bulldozed development sites and fresh pavement



INFOGRAPHIC: MATT HARVEY

along the waterfront contributes excess water run-off, while fertilizers used for lawns, agriculture and tree farms contain high amounts of nitrogen.

The problem is obvious from Highway 101 along the west side of Hood Canal. Waterfront houses are wedged together along the beach and run parallel to tree farms, cattle pastures and residential sprawl.

Hood Canal residents like Geoff Pentz, owner of Sound Dive, said he is cynical about the issue because it is old news to locals that live in the drainage basin.

"People who live next to the canal don't care," he said. "The bottom line is that they will continue to use fertilizers."

A coalition of 38 groups including universities, state agencies, tribal councils, government and non-profit organizations came together to form the Hood Canal Dissolved Oxygen Program. The program encourages residents to reduce their use of fertilizers and pesticides in effort to improve water quality. The program also discourages the construction of bulkheads, concrete structures that prevent erosion, in order to promote eelgrass, a marine plant that creates dissolved oxygen. But many residents will not cooperate. Pentz said the only reason some people do care is because they are involved commercially and cannot fish anymore.

"People just want to take the resources and leave," he said. "No one wants to take responsibility for it."

Fish kills make the dissolved oxygen problem more tangible for the community, but the real concern is what people don't see, Newton said.

The bacteria thriving in the eutrophication process doesn't just disappear. Palsson said the same bacteria has been congregating at the bottom of the canal since the 1950s.

Divers recently discovered a 3.5-foot-thick bacterial mat stretching over four miles along the bottom of Hood Canal, creating an ecological dead zone. The area the bacterial mats cover is devoid of other sea life because no dissolved oxygen exists in the water for anything to survive. Palsson said the animals flee away from this dead zone.

"It's shocking to see the animals move away so quickly," he said. "There's an odd, strong response like deer running from a forest fire."

The presence of bacterial mats is the white flag of an ecosystem in peril, Palsson said.

Shull agrees.

"Ecosystem changes will occur," Shull said. "Commercially valued species will perish."

As low dissolved oxygen levels affect animals higher up in the food chain, species like dungeness crab will die, Shull said. WDFW has already closed fishing for herring, some crustaceans, squid, octopus, sea cucumbers, and all bottom fish including lingcod and rockfish. Currently, coho and chum salmon are the only fish species legal to catch in Hood Canal.

Ironically, the canal's exceptional range of biodiversity and the biological catastrophe brings divers of all skills, and small towns along Highway 101 generate business from the diving industry, said Ron Ault, local business owner of Hoodsport n' Dive. But he said he is worried it could be the last surge of business before divers desert a lifeless sea.

"It would be desolate. No one would want to dive," he said. "It would be like hiking in the woods without trees."

Washington state is allocating \$25.7 million towards research in order to restore water quality in Hood Canal. The programs focus on the management of hatcheries, livestock waste, and storm water and sewage, including low-interest loans to help failing septic systems. In addition, the University of Washington received over \$3 million from federal funds to research and interpret the intricate ecosystem. Newton said she is optimistic about the research being done on the canal.

"The organisms are in dire straits," Newton said. "The reason I do have hope is because we are studying it."

The health of the places we live reflects the well-being of our own health, said Janna Nichols, a self-proclaimed "armchair marine biologist" who is a certified master diver. Nichols said in her brief seven years of diving experience she has seen a decline in the ecosystems of Puget Sound.

"Everything is interconnected," she said. "When it deals with water quality it has to do with you."

Nichols's words run through my head as daylight beckons me back to the surface.

A light mist hovers in the air and I try to wiggle my fingers, which are numb from the biting cold water. The gray sky promises no sun any time soon. With the return of fall, the fish




PHOTO BY ELISA WEISS

Sea cucumbers are particularly susceptible to low dissolved oxygen. When stressed, they extend all of their 20 feeding appendages, as seen above.



PHOTO BY ELISA WEISS

The wolfeel is an elusive fish that is usually hidden in crevasses. This wolfeel was found at a depth of 15 feet.

are diving a little deeper and swimming more energetically. The rain provides the canal with more oxygen and the lack of sunlight will prevent algae from blooming. I examine the fellow divers surrounding me, and I take a moment to consider why we are all here; to see something unique and beautiful. But unless remedies are found, that beauty will become a marine wasteland. 

Elisa Weiss studies environmental journalism and science. This is her first published piece.



ORGANIC INCORPORATED

by Davide De Masi

Many organic items, such as these bell peppers, line the tables of the Bellingham Farmers' Market. The Market provides an opportunity for shoppers to buy produce that supports local farms.

The Pacific Northwest sun is slowly burning off the crisp October morning fog as a young girl and her father walk down Cornwall Avenue to the Bellingham Public Market. At the market the girl watches as her father handles a large organic eggplant, inspecting it carefully.

Meanwhile, a red Ford pickup cruises down one of Whatcom County's busiest thoroughfares, Meridian Street, from Lynden. A young mother of three steps down from her vehicle and guides her children into Wal-Mart where she regularly purchases organic milk for her family.

photo by Joel Kresse

“Every time you eat, you have the opportunity to change the world three times a day.”
—Stephen Trinkaus owner of Terra Organica



PHOTO BY DAVIDE DE MASI

The owner of Skagit River Ranch, George Vojkovich, explains the benefits of organic food to a visitor.

Although these two consumers may differ in political, financial, and moral reasons for purchasing organic food, they both contribute to the blossoming organic food movement. With an annual growth rate of 15 to 20 percent per year, and annual sales topping \$14.5 billion in 2005, the organic movement is reaching critical mass and is catching the attention of large international corporations such as Wal-Mart and General Mills. But with expanding growth and popularity, the organic food movement is struggling to sustain its original ideals.

The organic movement started in the 1970s in response to the environmental movement. In an effort to provide consumers with a product free of chemical additives, farmers joined together to promote guidelines and standardization. The standards provided product assurance to consumers, said Catherine Green, senior agricultural economist of the U.S. Department of Agriculture (USDA).

Stephen Trinkaus, owner of Terra Organica, one of the nation's first all-organic grocery stores said that in the early days of the organic movement, people strived to attain an ideal of pure food production.

“There was a dream that society would move organic someday,” Trinkaus said. “The more acreage farmed organic the better.”

But as the industry matures, it may become a victim of its own success.

While we are still far from becoming an “organic society” as Trinkaus described, organic farming has nonetheless managed to establish itself as a viable alternative to conventionally grown food. According to the USDA, organic farming had a market share of almost 2.5 percent in 2005.

With organics becoming available from larger retailers, organic



photo by Joel Kresse

farmers aren't able to meet demand, according to a British Food Journal study by Uwe Latacz-Lohmann and Carolyn Foster of Wye College, University of London.

As the industry grows, groups such as the Organic Consumer Association (OCA) and the Organic Trade Association (OTA) have begun to scrutinize the actions of large food distributors and producers to assure that food labeled organic really is organic.

Simply stated, organic food demand may inadvertently undermine people's intention to purchase “green.”

“People think they are supporting a social outcome, a better environment or healthier lifestyle. Organic food today simply doesn't represent that fact,” said David Granatstein, of the Center for Sustaining Agriculture and Natural Resources at Washington State University.

USDA standards say nothing about the environmental impact of food distribution and transportation, Greene said.

For example, if a consumer shops at a grocery store in search of an apple, they may select an organic apple grown in New Zealand, when instead they could have purchased an apple that isn't USDA organic, but was grown locally.

Small-scale organic farmers simply cannot satisfy the consumer's demand for locally produced organic goods, said Ginger Oppenheimer, marketing manager of Bellingham's Community Food Cooperative.

“It's hard to get enough local produce to serve five stores,” Oppenheimer said.

Oppenheimer described the difficulty the Co-op had finding enough carrots to satisfy local demand as well as the difficulties that lay ahead when the Co-op opens their second store in 2007.

As a result of insufficient local supply, large retailers often resort to importing products from different states or even overseas.

“Organic farmers also rely on shipping food out of their market to allow prices to be competitive,” Granatstein said.



PHOTO BY DAVIDE DE MASI

All animals on Vojkovich's farm are fed organic grain, including his pigs.

photo by Davide De Masi



Organic farmer George Vojkovich holds a handful of his organic feed. He says his style of farming is difficult because conventional foods tend to be less labor intensive and cheaper.

The increased demand for a product with limited local availability couldn't have come at a worse time. The organic food industry and the U.S. population are expanding rapidly, and arable land in the United States is diminishing. According to the USDA, since 1982, cultivated lands decreased by nearly 20 percent while population has grown by nearly 22 percent. This situation results in over 68 million more mouths to feed, many of which prefer organic food.

This food requires more land because farmers fertilize their crops less efficiently by avoiding use of synthetic chemicals, according to a study by Anthony Trewavas of the University of Edinburgh, Scotland. Organic pea and bean yields were only approximately 65 to 70 percent and oat yields were only approximately 85 percent when compared to a conventional farm.

Trewavas's study also showed that organic farming requires that alfalfa and other grasses be rotated with food crops to provide sufficient nitrogen fixation in the soil, creating a lay period.

In addition to increased land required to produce enough organic food, the purchase of smaller companies by larger international conglomerates may dilute organic ideals.

According to Latacz-Lohmann and Foster's study, the basic ideals governing the organic production and distribution aren't compatible with large-scale operations. The study also shows the inherent inability of organic food to provide a consistent product to a market that demands convenience and consistency.

An example of smaller companies being purchased by international corporations is the purchase of Stonyfield Farms, an organic dairy producer, by French dairy giant Dannon.

"[These purchases] give the smaller companies a chance to get their food to a larger array of stores," Oppenheimer said.

In addition to giving smaller companies the necessary financial support of large-scale business, the takeovers can make organic farming attractive to conventional farmers who may have never considered growing organically before.

However, the OCA, a group with over 800,000 members recently boycotted Horizon Organics, which is owned by Dean Foods, the largest dairy processor and distributor in the world.

USDA organic cattle guidelines require that the livestock have access to shade, shelter, exercise areas, fresh air, and direct sunlight suitable to their stage of production. The association accused the company of massive factory-scale cattle feedlots, including one Idaho farm with more than 4,000 cattle in a near-desert environment.

According to an OTA manufacturer survey, dairy products are one of the fastest growing sectors of organic food, with a 23.6 percent growth rate in 2005.

The National Organics Standards Board, a 15-member panel, proposed less ambiguous grazing standards to the USDA, however they have yet to be accepted and implemented.

Some farmers like George Vojkovich, owner of Skagit River Ranch, are practicing their own ethical organic standards.

Vojkovich's products include organic beef, pork, chicken and dairy products. He described the pleasures of making what he considers to be a superior product, using only organic grain and grass-fed cattle. But Vojkovich says his style of farming is difficult.


"It's so labor intense and expensive," he said.

How can a consumer know that costly organic products adhere to organic standards?

Storeowners such as Trinkaus claim to be a filter for consumers, by selling only ethically produced products.

"The ability of the organic food market to meet demand is fundamentally different [than the conventional market]," Granatstein said.

When considering the costs in land, fuel, and higher prices, consumers have to decide if choosing organic is always the most environmentally ethical choice.

"Every time you eat, you have the opportunity to change the world three times a day," Trinkaus said. 

Davide De Masi studies biology. This is his first published piece.



photo by Joel Kresse

A basket of organic plums spills out onto a shelf at Terra Organica in Bellingham. The store provides solely organic produce from local and non-local sources.



SWAPPING GREEN for

by Chelsea Davis

GIRDIEN

A proposed building site for the new Alden Reach development.

On a dead end road near Birch Bay lies an expanse of old farm land. The area is dotted with patches of trees and Mt. Baker is visible from almost any place on the property. In an hour of walking through the field, two hawks circle over the tall grass looking for an afternoon meal. The abandoned land is bordered with trees lining a bluff that leads to a rocky beach. The San Juan Islands rise out of the water in the distance.

Rolled hay, a farm tractor next to an abandoned road and the nearby B.P. refinery towers billowing smoke into the air are the only evidence of human existence. Orange and pink flagging is tied to trees throughout the property marking the boundaries of what will soon become a 51-acre park.

Whatcom Land Trust received the property through a land swap with the Trillium Corp., an international development and lumber corporation based in Bellingham. The exchange was a clever political move as well, a "gift" from Trillium to get support for one of the largest development projects in Whatcom County history: a 1,000-acre project of homes, stores, factories and a college campus.

Whatcom Land Trust, a nonprofit environmental organization whose mission is to preserve and protect natural habitat, became active in western Washington in 1983. According to the Whatcom County Catalog of Philanthropy, the land trust is a local, grassroots organization that assists private landowners interested in protecting their land. In the last 20 years the organization saved over 6,500 acres of land from development. Currently the land trust is focusing on four conservation projects that serve to protect areas of environmental concern.

"We are working to protect what matters to Whatcom County," said Connie Clement, office manager of Whatcom Land Trust.

The land swap involved the exchange of a 43-acre piece of land near the south end, which the land trust owned and the 51-acre Trillium owns located further north. Earlier this year, with funds from the Washington Department of Ecology, the land trust purchased the 43-acre property from B.C. Hydro, a Canadian company that supplies electricity to British Columbia.

Trillium now owns 1,000 acres adjacent to the land trust's property. Trillium was a holder of the First Right of Refusal on the land B.C. Hydro owned, meaning that B.C. Hydro had to first provide Trillium the opportunity to accept or reject the offer to buy the land. When given the option, Trillium opted to work with the land trust and exchange properties. The swap was a necessary deal, and is one that the land trust is thankful for, Clement said.

"We are grateful to Trillium," she said. "The end result left us with a better park."

The 51-acre wooded wetland is an ecologically more diverse habitat than the 43 acres south of the property Trillium received. The wetland will become a better park than the property the land trust previously owned, Clement said.

The plan for the park is to clear overgrown trails, provide scenic outlooks, and public beach access to the 1,700 feet of marine shoreline, she said.

"There is no large park for the people in Blaine," Clement said. "They spoke of wanting more parks, and this deal allows them to have one."

After initial construction, Whatcom Land Trust members hope to hand the park over to Whatcom County parks and services, which would maintain the property. The park is set to open around September 2007, Clement said.

With a date set and the deal made, the land trust has to start the small maintenance tasks before the property will be open to the public.

A Troubled History

Trillium is well-known by the Bellingham community. The company is responsible for the Bellis Fair Mall, Cordata Business Parks and the Cornwall Building. They have holdings on large sections of land around downtown Bellingham.

The number, size, and effects of Trillium developments created a reputation among some of Bellingham's residents, said Tom Pratum, a conservation chairperson for the North Cascades Audubon Society.

"A lot of people around here are suspicious of them because of what they've done in the past. They don't trust them, they haven't seen them do anything good," Pratum said. "And to tell you the truth, I haven't seen them do any good myself."

Trillium's Web site claims the corporation supports sustainable design, and that they are stewards for the environment, working with conservationists. Trillium has sold or swapped hundreds of acres of land for preservation and scientific research.

For example, in 1994 the corporation exchanged 20,000 acres of timber land in Whatcom County for timber land zoned for commercial forestry in the central and eastern sections of Whatcom County. The land swap resulted in watershed protection, preservation of old-growth forests and increased public access to forests around the county.

"Our vision is one that celebrates the natural assets: the land, the water and view while creating economic opportunities," said David Syre, president of the Trillium Corporation.

Trillium's unflattering past explains the community's distrust. According to a profile of Trillium compiled by George Drafan, an environmental author, The Forestal Trillium Ltd. obtained 864,000 acres of land on the island of Tierra del Fuego in 1993. Trillium's proposed project for the land was sustainable forestry of the lenga beech tree that covered the island.

Trees weren't the only thing inhabiting the island; it was also home to a variety of species such as penguins, foxes and wild llamas. Environmentalist groups, such as Defensores Del Bosque Chileno (Defenders of the Chilean Forest), feared that clear cutting would affect the wildlife. The group also worked to show the Chilean government that Trillium's forestry was not sustainable. Trillium was asked to close the Lenga Mill in 1999, and the land recently became a nature reserve.

An article in *The Seattle Times* accuses Trillium of extensive clear-cutting of second growth forest on Whidbey Island in 1998.

The Audubon Society blames Trillium for developing on ecologically important habitats. According to the Audubon Society, the construction of the marina at Semiahmoo destroyed sections of gravel and

eel grass beds. This impacted the Brant goose whose migration path includes the Northwest coast. Since the construction of the marina, the number of geese has significantly decreased, Pratum said.

Pratum said he also believes that Trillium has never selflessly given back to the environment.

"Trillium never gives land away, they never donate land," Pratum said. "They trade land, they sell land, but they don't ever do anything without getting something in return."

According to the Audubon Society, the continuous growth of the Birch Bay Urban Growth Area will bring too many people to an environmentally-sensitive area, and possibly impact a number of sensitive species living in the region.

"We are certainly concerned about this development and the pace of development in our area as a whole," said Paul Woodcock, president of the North Cascades Audubon Society. "The numbers of wintering waterfowl and other wildlife which use our area make it imperative that we work to protect our as much of our remaining shoreline habitats as possible."

Alden Reach

Trillium's plan for the 1000-acre stretch of land is only tentative.

"It'd be a fairly complex and lengthy process that [Trillium] will have to go through," County Council Executive Pete Kremen said. "They have not really presented the city council with a specific proposal. Right now, it's more of a concept or vision than a set project."

If all goes as planned and Trillium gets the go-ahead for development, the mixed-use community they plan to build has the potential to be half the size of Blaine, Washington. The new community, Alden Reach, could bring an estimated 2,165 people to an area that is currently nothing but pastures and tree stands.

Once developed, the open fields will disappear and a community envisioned to be commercial, light industrial and residential property will sprout in its place. Mauri Ingram, project manager of the Trillium, said there was also the possibility of a higher education campus. High-density buildings, such as condominiums, are being considered to take greater advantage of

the land, Mauri said.


Ingram said it is important that Alden Reach become a part of the Birch Bay Urban Growth Area, which leaves even more of the final decisions up to the county and the community.

"It's hard to say how the community will react to this," Pratum said. "The plans are so vague, that it makes it hard for the county to have any strong opinions yet."

The 2000 census bureau estimates that from 1990 to 2000 Whatcom County grew by 31 percent, or 50,878 people. Growth has slowed over the last five years, to about 2 percent per year, so the county is now adding about 3,700 people per year.

If Alden Reach draws 2,165 newcomers to Whatcom County, the development could possibly be responsible for nearly 60 percent of the estimated population growth for a single year. With more people comes the need for more houses and jobs, Ingram said.

Although the necessity of Alden Reach remains questionable, more details will be uncovered as the project moves through the stages of planning. Until then, the community of Whatcom County can celebrate the addition of a new park, Clements said.

"We did what we had to do in order to get the park. What happens to the rest of the land is up to Trillium," Clements said. "We can now give the people a park that captures the essence of the Northwest." 

Chelsea Davis studies environmental journalism. This is her first published piece.



PHOTO BY CARLA MINGIONE

Trillium Project Manager Mauri Ingram describes the ideas behind a possible future development called Alden Reach.

POPPING THE TOP ON ALUMINUM

by David Raffkind



PHOTO BY CARLA MINGIONE

Coiled tubing and scrap sheets of aluminum in a pile at Northwest Recycling in downtown Bellingham. Nearby piles contain car radiators, bicycle frames, window frames, license plates, kitchen pans and beverage cans.

The furthest thing from a 21-year-old college student's mind as he dashes from the gas station with four cases of Natural Light, one in each hand, two more under arm, is the direct and avoidable environmental impacts that have ensued to deliver him 96 aluminum cans of glorified, glistening liquid courage.

He isn't thinking of the toxic mine tailings and solid wastes resulting from the mining of alumina oxide-rich clay, bauxite. Nor is he considering the caustic byproducts of extracting alumina ore from this clay. Chances are he isn't even aware that the Environmental Protection Agency (EPA) rates the perfluorocarbons (PFCs) emitted during the final smelting process of alumina as having up to 9,200 times greater global warming potential than carbon dioxide. Few of his drinking buddies or the other 300 million Americans are aware of the irreversible impacts to global ecosystems so they can enjoy their favorite beverages with a sharp crack of the tab and tip of the can.

Smelting, the final step in the production of pure aluminum, is the most energy-intensive industrial process in the world. Smelting is the phase of aluminum production resulting in the greatest release of hazardous air emissions and greenhouse gases.

"Six years ago there used to be 11 smelter operations in Washington, Oregon and Idaho. Now just two are left," said James Sines, high performance work organization coordinator for Alcoa's Ferndale, Wash. plant.

The two remaining smelter operations of the Northwest, both owned by Alcoa, are located in Ferndale and Wenatchee, Wash. These plants survived because of the inexpensive power created by the hydroelectric dams on the Columbia River.

According to the Container Recycling Institute (CRI), the aluminum industry utilizes 2 percent of all global energy produced. The Ferndale smelter is capable of producing 278,000 tons of pure aluminum each year. However, due to the rising cost of energy the smelter is only operating at 33 percent of its full capacity, producing approximately 90,000 tons per year. The Ferndale Alcoa plant at full capacity utilizes a constant flow of 470 megawatts, Sines said. Current operation at one-third capacity is using between 160 and 170 megawatts. The electricity used by this single Alcoa plant in

one year at one-third of its possible capacity could power the entire Western Washington University campus for 39 years.

"Pure alumina ore, Al_2O_3 , is one of the most stable compounds in the world," Lunzer said. "That's why it takes so much electricity to break it apart to get the oxygen off so you have pure aluminum."

Alcoa is the world's second leading producer of primary aluminum and alumina ore. The company has 129,000 employees in 43 countries whose combined efforts generated revenues exceeding \$26 billion in 2005. Both Washington plants specialize in producing primary aluminum utilizing virgin materials as opposed to secondary aluminum that utilizes reclaimed scrap and used beverage containers.

"Alumina ore is one of the most plentiful raw materials in the world, but it must first be mined from bauxite," Alcoa plant metallurgist Scott Lunzer said.

The first droplets of pure aluminum weren't produced until the early 1800s with the advent of electricity. This is because of the refining and extraction process that this bauxite clay must undergo in order to produce the pure aluminum and aluminum alloys widely used today.

According to CRI, two-thirds of the world's bauxite supply



PHOTO BY CARLA MINGIONE

An Alcoa employee uncovers a row of anodes. In the world's most energy intensive industrial process, electricity flows through these anodes, smelting alumina ore into pure aluminum.

comes from Australia, Guinea, Jamaica and Brazil. Extraction via strip mining sets the production of aluminum into motion, and is also the first of the many environmental impacts endured in producing the metal.

The open pit strip mining requires the complete removal of vegetation and topsoil. The high rainfall of the tropics causes severe erosion into streams and waterways.

Mined bauxite contains 45 to 60 percent alumina ore. Two pounds of alumina ore are refined from 4 to 5 pounds of bauxite, according to the International Rivers Network. The remaining insoluble byproduct, a caustic sludge called red mud, poses severe environmental problems.

Typically dumped into excavated mine pits, the sludge has a history of seeping into groundwater aquifers, contaminating waterways and local drinking supplies.

Primary aluminum manufacturing releases dangerous gases which are hazardous to both human and environmental health. Additionally, approximately half of the electricity required to power smelting in the United States is coal-generated, according to CRI. Eight tons of combustion-related CO₂ are emitted for every ton of primary aluminum produced.

The electricity needed for the smelting process comprises 25 to 35 percent of aluminum's total expense. As a result, it is cost effective to ship alumina ore halfway around the world from where it is mined and processed to take advantage of cheap power. Lunzen explained that the Ferndale smelter receives all of its alumina from Australia.

Energy prices in the western United States skyrocketed in the fall of 2000. In the wake of the rolling blackouts 10 Pacific Northwest smelters utilizing hydroelectricity from the Columbia River dams were hit hard. The federal Bonneville Power Administration refused to renew the subsidized long-term contracts, and all but two were forced to close down.

As electricity here becomes more expensive, multinational aluminum companies are shutting down large numbers of their existing smelters and seeking development of new ones in regions with cheap, subsidized power.

"We have no choice," Sines said. "We

Alcoa's Ferndale plant uses enough energy per year to power Western for 39 years.

have to be efficient. We're paying more for power than anywhere else in the world. We're paying more for electricity from hydro dams than [smelter operations] are on the east coast with coal. For us to be able to compete with China and everywhere else we have to be the most efficient."

Alcoa's Ferndale plant has set the benchmark for pollution control, Sines said, lowering emissions to one-third of most U.S. plants in recent years. However, the release of perfluorocarbons (PFCs), C₂F₆ and CF₄, is a serious issue at other plants with older emissions technologies. These very rare fluoride gases are not produced in any other known industrial or natural process. Unlike other greenhouse gases PFCs are not broken down by combustion, sunlight or reaction with other atmospheric gases. While only three pounds of these vapors are released per ton of aluminum produced, the EPA rates them as having global warming potentials of 6,500 and 9,500 times that of carbon dioxide.

It helps to reuse aluminum. Unfortunately, the recyclable aluminum can isn't always recycled.

"With the beverage container, you buy it and it's mobile, you can go all over the



PHOTO BY CARLA MINGIONE

A transport truck pours molten aluminum into a furnace at Alcoa. The aluminum will stay in the furnace until it is cast into a solid form.




PHOTO BY BECKIE ROSILLO

A pile of aluminum cans sits at Western's Associated Students Recycling Center. Western's collection of 5,000 pounds of recycled aluminum last year was the lowest amount in seven years.

place with it. The trick is getting people to hang on to them until they find a bin," said Richard Neyer, Western's Associated Student recycling coordinator.

Western's collection of 5,000 pounds of recycled aluminum last year was the lowest amount in seven years.

According to the IRN, if the 96 cans contained in the four cases of beer are recycled they will require 95 percent less electricity to become cans again than if they are replaced by new cans made from virgin materials. These cans alone can save enough energy to power a laptop computer for 40 days straight.

When our 21-year-old college student and all his buddies awoken from their drunken stupor the next morning, they face two choices: trash all the empty cans they smashed against one another's foreheads or find a recycle bin. 

David Rafkind studies environmental science. This is his first published piece.

ACTIVISTS DOWN UNDER

story and photos by Andrew Bernhardt



Sitting on a tripod, an activist blocks access to the logging road at the town of Goongerah.



An activist locks himself to the tread of a tractor on day three of the protest.

For my last quarter at Western, I studied abroad at the University of Melbourne in Australia. In my time there, I linked with the Environment Collective and joined in on some of their activities, such as getting renewable energy on campus. During mid-semester break, I tagged along on a camping trip to East Gippsland, six hours east of Melbourne. But this would be no normal camping trip. It was an organized action to blockade logging activities in Victoria's old-growth forest.

"You are all within a public safety zone, if you don't leave now you will be arrested," said the officer.

Activists and arresting officers often get to know each other by first name.

"Lauren," he said in his thick Aussie accent, "You're already on bail, you can't afford to get arrested again. Danya, same with you. Leave this area immediately."

The officer knew he could get the group of protesters to leave the logging area with a simple warning. But the four people locked

onto the log mover and excavator, that was a different story. Search and Rescue would have to be flown out from Melbourne to cut them off the machines before they would leave.

I've always felt that when political and legal means fail, non-violent direct action has its time and place. When I heard about the East Gippsland trip and the chance to be part of forest preservation in Australia, I naturally went along wholeheartedly.

The trip was to a town called Goongerah, home of Goongerah Environment Centre, one of the most recognized environmental groups in the Australian state of Victoria. The protest focused on recent old-growth forest logging. The plan was simple: set up a blockade and hold it as long as we could while gathering as much media attention as possible.

We left Melbourne on a cloudy Sunday afternoon, the Holden sedan packed to the legal limit. Visiting with my newfound Australian student companions, I watched out the window as the city faded into bush and daylight succumbed to darkness. Hours passed while I watched the landscape change on this unfamiliar continent. The last hour seemed to stretch on forever as we drove through pitch black forest, dense with Eucalyptus trees and ferny undergrowth that seemed like something out of the Jurassic.

We arrived at the blockade sometime before midnight, relieved the drive was over and eager to see which of the dark figures standing around the campfire we knew. It was a younger group, some students, some locals, and several hardcore activist types.

"We have to be ready for the loggers to rock up around dawn," said a local activist, who said she devotes most of her time to blockading logging in East Gippsland.

"There's still heaps of stuff to get done before then, so most of us aren't sleeping tonight," she said. "We'll need everyone to help set up the tripod, we need firewood, and others could scrub the road or dig a ditch. Scrubbing the road is putting anything you

can find onto the road, mostly logs. It just buys a little more time for when the cops or loggers get here. Now, who is willing to get arrested tomorrow?"

They went over what to expect the next day, the severity of legal charges, and how to talk to the police.

With my borrowed hiking boots caked in mud and my trusty head torch shining the way, I began grabbing logs and throwing them on the pile across the dirt logging road. We took turns gathering logs, setting up camp, and getting to know some of the other activists. We set up the tripod that someone would sit in before the loggers arrived the next morning and tied a tree-sit to the tripod. This way two people were supported by the tripod and would have to be removed before the road could be used. With only a couple hours of darkness left, I crawled into my sleeping bag, deciding against staying up all night

Day 1

"Everyone get up! The loggers will be here any minute, get up!" said someone at the crack of dawn.

"Is anyone in this tent?" He was only a couple of feet away.

"Yeah, got it. I'm getting up," I replied.

Adrenaline began pumping as I imagined the potential situation when the loggers arrived. Are they the violent type? Will I get arrested? Do the cops use tear gas, or mace?

Eventually two white trucks came over the hill and approached the blockade. Loggers. A young activist sat high up on the tripod and another was about 60 feet up on the platform in the tree. The loggers drove through the field next to the road, around the blockade we'd set up.

A few hours later, Victorian police and the Department of Sustainability and Environment (DSE) officers arrived and said we were in a public safety zone and warned us all to move our camp elsewhere. Public safety zones are maintained to keep people away from falling trees and other dangerous

logging activities.

"We don't believe you. You need to show us a map of where the zone is before we'll move," the local activist leader said.

The DSE arresting officer ignored her.

"You've been warned. If you don't move you'll be arrested," the officer said. Singling out a protester with patched pants and long dreadlocks, the officer announced, "If we come back here, I'll make sure you're the first one arrested."

The singled-out activist rolled his cigarette, not phased by the threat.

"We have a winner! Ten free beers for you!" yelled the activist leader.

Heckling the officers is common, mostly to lighten the mood.

Day 2

"Everyone wake up, the cops are going to be here in 20 minutes!" someone announced early in the morning, banging on a pot.

I got up with just enough time to get dressed and eat. Then a parade of about 20 police, DSE, and other vehicles came over the hill.

Again, the public safety zone warning from the DSE.

Again, the protesters said they didn't believe them, and requested to see documentation of the zone.

We knew the options were to stay and get arrested, or move down the road to another campsite. I packed up my tent and belongings.

Up at the site, the police cabled off the ropes that were tied to the logging equipment, leaving the tree-sits untouched but the machines free. After shutting them down for a day and a half, the loggers continued. Our friends in the tree-sits sat and watched as this mature, native forest was turned into lumber likely to be shipped to Japan in the form of woodchips.

"We're deciding what we should do for an action tomorrow, but we wanted to ask how everyone is feeling. A little worn out?" one of the leading organizers asked.

Nobody objected to more action. Most people were excited at what they'd seen and

wanted to keep the momentum going while we still had the numbers. And, the best news of all, our actions were making a difference.

"I've been at the roadhouse all day doing press. Media is going off! I had two national interviews, radio, and we're on the front page of The Age online," the unofficial public relations guy for the group said, motivating everyone for more action the next day.

Day 3

Up bright and early, we packed into cars and drove to a different logging site.

Two loggers were on the job. As we parked and walked up to the site, they got into their trucks and drove off, leaving us full reign of the site.

Two pairs of protesters locked themselves onto the heavy machinery, consisting of a log mover and an excavator. With chains around their wrists, they slipped their hands into metal pipes and hooked onto a rod welded across the middle.

Then the same DSE and police officers we'd encountered over the last two days showed up, and gave the same public safety zone warning they'd given at the previous site.

Two girls on one machine and two guys up the other remained locked to the machines while the rest of us waited at the end of the road.

Late that afternoon Search and Rescue freed the people locked on and the police made five arrests. Twelve people were arrested in total over the three days of action.

That night around the campfire I talked to a tall Australian activist who protested in forests across Australia for 13 years. He was pleased to share his activist battle stories to us new recruits.

"I was tortured for two and a half hours once," he said. "We stormed a woodchip mill some time in the late 90s. I hit the emergency stop on the conveyer belt and locked onto it. About 30 mill workers punched and kicked me, then sprayed me with the firehose until I was nearly hypothermic. Right about the time they got a blowtorch out and started braising my legs with it, the cops showed up."

He went on about winters spent living

in the forest setting up blockades, his experiences hanging out with loggers, and what he plans for the future.

"This is like a war," he said. "I would die to protect these forests."


David Hammerton, the University of Melbourne student union environment officer, was also in East Gippsland that week. Hammerton was arrested twice for protesting. He received five different charges when he and three others broke into a shipyard in Geelong, south of Melbourne, and locked themselves onto a ship transporting woodchips to Japan.

"I think everyone should be doing everything they can to make certain that we don't destroy the planet anymore, and this is my part," Hammerton said.

He says that the forests in East Gippsland will be gone in four years given the current rate of logging.

"Over the last year we've delayed logging by maybe 40 or 50 days," Hammerton said. "By blockading, you're not going to protect the forest. Delaying [logging] is really important, but when you tie it into the forest political campaign, that's where it becomes most useful."

Although 85 percent of old-growth forest in Victoria is set aside from logging, a large portion of what remains lies in East Gippsland.

I came away from that week with an experience I could have never predicted choosing to study abroad. After being told my whole life that "there's nothing you can do," or "it's just the way it is," I saw people just like me on the other side of the world doing what they could to build a better world, and I'm content knowing that it changed my outlook for the better. 

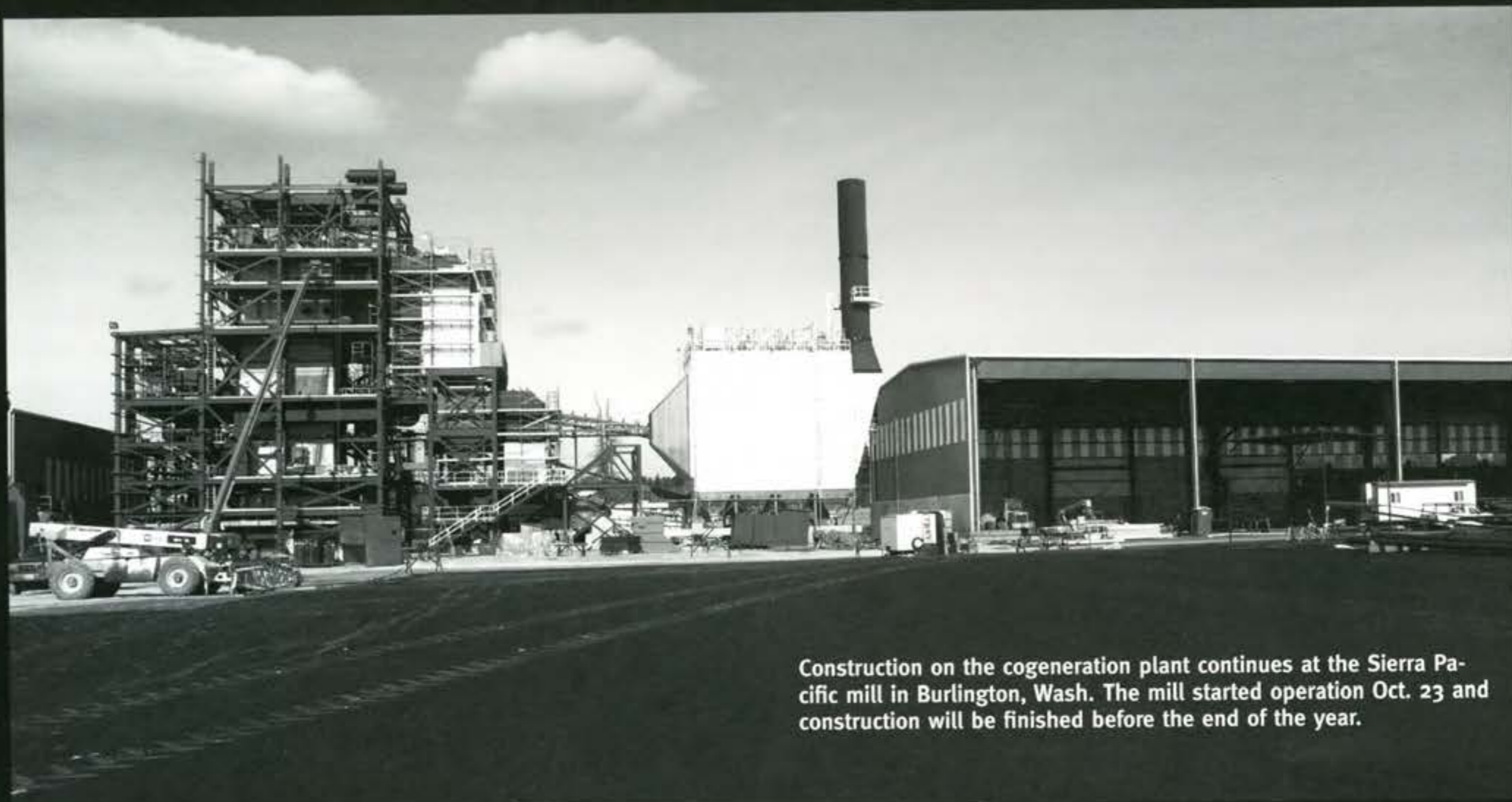
Andrew Bernhardt studies environmental science. This is his third Planet article.



By locking their arms to the tread of the tractor, the activists immobilize the machinery from further use.

FORESTRY: A CONSERVATION COMPROMISE

by Page Buono photos by Joel Kresse



Construction on the cogeneration plant continues at the Sierra Pacific mill in Burlington, Wash. The mill started operation Oct. 23 and construction will be finished before the end of the year.

The relationship between foresters and conservationists, one which formed from a history of protest, disagreements, lawsuits, and legislation, is taking a turn as new and greater threats haunt forests in the Pacific Northwest. Urban sprawl and development force environmentalists to seek new means of conservation in the form of a partnership of necessity with an old time adversary: the timber industry.

"The tide has turned since foresters and conservationists worked against each other. We're entering a time now where you won't see, at least not as many, conservationists chaining themselves to trees to save the forest," said Molly Doran, executive director of Skagit Land Trust, emphasizing the surprising alliance between conservationists and the forestry industry.

Doran said the real threat to forests now is not the logging industry, but rather urban sprawl continually pushing boundaries into forests, wiping out both old and secondary growth forests. When Sierra Pacific Industries, based in Redding, Calif., purchased the nearly 147,000 acres in upper Skagit Valley and around the Nooksack Watershed, Doran breathed a sigh of relief. Sierra Pacific purchased the land out of bankruptcy from Cascade Timberlands LLC with plans to build a small-woods mill in Burlington, Wash.

The Washington chapter of The Nature Conservancy also bid on the land, Communications Director Leslie Brown said. Their plan was to conserve much of the land around the Skagit River and other stream beds, and to partner with a timber company and open some of the land for sustainable, light forestry.

Brown said the conservancy was interested in the land because of the importance of the Skagit River and all five species of native Pacific salmon that rely on the river.

"You can try to protect a river," Brown said. "But if there's not conservation upland of the river, it really isn't protected at all."

She said although it isn't the ideal use of the land, forestry is better than development.

"When a forest is purchased for a logging industry, it's still in their best interest to maintain a healthy forest," Doran said, pointing to a map of Skagit County and the surrounding wilderness. "Sprawl is forever, and trees don't really like concrete."

A thin green line on the map represents the area of old growth, surrounded on one side by encroaching city roads and structures represented by orange and yellow shapes. On the other side of the old growth area is a vast light green line representing second growth forests.

"Regulations on buildings and such work for now, but they aren't going to work forever," Doran said, referring to the constant threat of builders wanting to build out in the woods and expand the red and yellow on the map.

Much of the land Sierra Pacific purchased was a part of Crown Pacific's Hamilton Tree Farm, and won't be ready for harvesting for some time, said Ed Bond, Sierra Pacific public relations officer.

"This is a long-term investment for us," Bond said. "We won't be able to harvest the land for another 20, 30 or 40 years."

Mitch Friedman, executive director of Conservation Northwest, said Crown Pacific was in over its head in debt, and had over-cut the forests without allowing adequate growth in order to profit.

Friedman said he was not worried about species in the area Sierra Pacific purchased because wildlife living in second growth forests is fairly abundant. He said the Nooksack Elk herd would probably reside there in the summer, requiring older growth for the winters. He said the dead wood remaining after clear-cutting provides habitat for small animals.

A large amount of the wood coming to feed Sierra Pacific's new mill will come from Canada, federal lands and private landowners, said Tom Nelson, Hamilton district manager and forester for the company.

Some of the old mills in coastal Canada are old and inefficient Friedman said.

"They're probably pretty unhappy about the wood from their coastal rainforest being shipped past the mills in British Columbia down here," he said.

Approximately 10 percent of Sierra Pacific's land is currently harvestable, Nelson said. In the next 30 to 40 years the land will produce a marketable amount. About 20,000 of the 147,000 acres can't be harvested because they are stream buffers or landslide areas, he said.

When Sierra Pacific begins harvesting, Bond said the company will follow strict environmental standards from the Sustainable Forestry Initiative (SFI), an initiative other private landowners in the industry created.

According to Sierra Pacific's Web site, their commitment to the initiative demonstrates a stewardship ethic on lands they own.

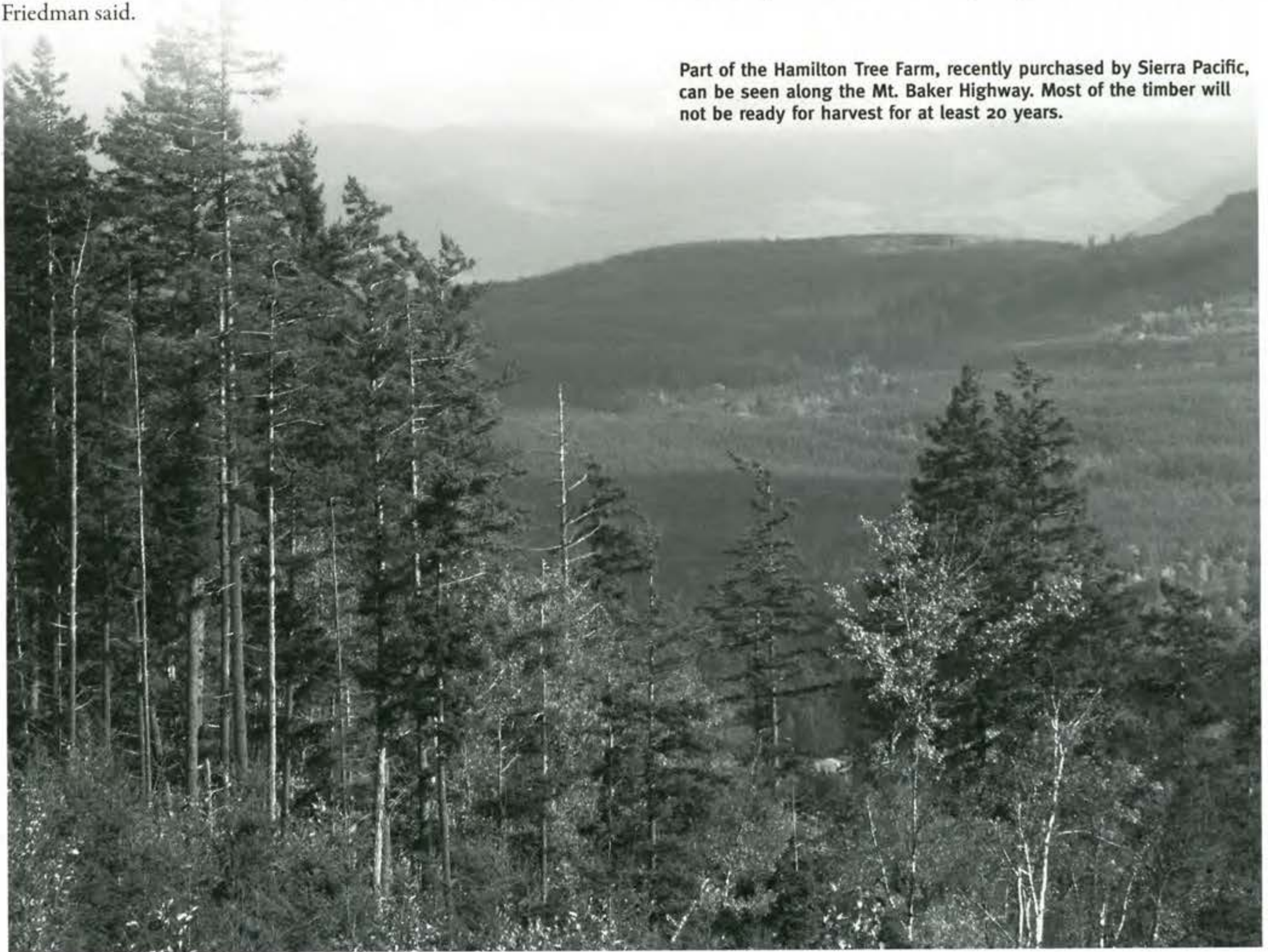
But George Draffan, author of "A Profile of Sierra Pacific Industries," said SFI certifies virtually every timber company in the country.

"That should tell you something right there," Draffan said.

He said in the beginning there was hope the initiative would mean less work for environmentalists, but it has turned into an easy way for companies to claim environmental stewardship without much regulation.

"Don't Buy SFI" is a Web site exposing the faults of an environ-

Part of the Hamilton Tree Farm, recently purchased by Sierra Pacific, can be seen along the Mt. Baker Highway. Most of the timber will not be ready for harvest for at least 20 years.



mental initiative composed by its own industry. The Web site also gives new meaning to the letters SFI: "Same old Forestry Initiative."

A 10-page "Hall of Shame" shows photographs of vast areas of clear-cuts, some of old growth Redwoods in California on land which is certified by the initiative. One picture on the first page is of Sierra Pacific's clear-cut above Beardsley Reservoir in Tuolumne County, Calif.

Doran said she sees a small problem with Sierra Pacific following their own standards, but said she thinks other programs are not much different and a slew of conservation groups will be keeping an eye on them.

Clear-cutting is Sierra Pacific's main method of cutting woods, Nelson said.

"It's the proper way to do it," he said. "After a clear-cut, the forest regenerates the same way that it would after something like a forest fire."

Nelson also said clear-cutting helps to prevent big forest fires.

In his article, Draffan wrote that he considers this argument ironic, because the method doesn't allow for old growth, and because logging operations cause the most damaging forest fires.

Sierra Pacific's new cogeneration mill in Burlington is modern, extremely efficient and clean running, said Robert "Butch" Bernhardt, director of information services for Western Wood Products Association. It will be their second mill in Washington; the other is located in Aberdeen.

Between the two mills and the purchase of the Hamilton Tree



A steady stream of woodchips and sawdust cascades out of the mill, destined for the cogeneration plant. Sierra Pacific utilizes this former waste product to produce power for the site.

"You won't see the same kind of mills that your grandfather saw with black smoke billowing from the top."

-Ed Bond, Sierra Pacific public relations officer

Farm, Nelson said Sierra Pacific invested about \$400 million dollars in Washington.

Bernhardt said the entire forestry industry recently modernized, with the addition of computerized scanning systems, which determine the most efficient cut of the log.

"The most important decision you make is often the first cut you make on a log," Bernhardt said. "It's really easy to fall behind in the industry without all of the technical advances that make the mills run so much more efficiently."

Sierra Pacific's mill in Burlington will not only have these computer advances, but will create approximately 30 megawatts of its own energy by burning the bark and other excess from the trees, said Curt Adcock, division manager in Burlington.

Adcock said only one-third of this energy will be used on site, and the rest will be sold back to the power grid, which could power approximately 13,000 homes continuously.

"We utilize 100 percent of the logs that come in," Adcock said.

Wood that used to be considered waste is cut into woodchips and sold to the paper industry, Bond said.

"You won't see the same kind of mills that your grandfather saw, with black smoke billowing from the top," Bond said.

In fact, the only visible emission from the Burlington mill will be steam from the wood drying kiln, he said.

Emissions from the plant are regulated by an electro-static precipitator. Workers dispose the ash and other particles, Nelson said.

The plant, located east of Burlington on 144-acres off of Farm-to-Market Road began operation on Oct. 23. Sixty-seven employees began testing and training on the new equipment. The cogeneration plant is still under construction but should be finished by the end of this year, Adcock said.

At full capacity, the mill will employ approximately 230 people who will make an average of \$18 per hour and will receive full benefits.

While this new partnership places both industries on even ground, the future of the forests remains unknown. Old growth forests are slowly disappearing with little hope of renewal in the future. The restrictions on urban sprawl and growth are not going to work forever to protect forests surrounding Whatcom and Skagit County. The question is whether forestry is really the best alternative. **P**

Page Buono studies environmental journalism. She has been published in The Western Front.

"In the end we will conserve only what we love.
We will love only what we understand.
We will understand only what we are taught."

-Baba Dioum