




DARK SIDE OF THE

California's San Pedro Bay ports form a vast metropolis of polluting cargo ships, trucks, and locomotives—a “diesel death zone,” say the neighbors, who are fighting back against the leviathan

BY WADE GRAHAM



Stacks of containers are unloaded at this China Shipping terminal and sent by the truckload onto Los Angeles's Harbor Freeway.

E NEW ECONOMY

PHOTOGRAPHS BY ANTONIN KRATOCHVIL

THE HUDSON SCHOOL IN WEST LONG

Beach looks like a typical California public school: a rectangle of perhaps 10 acres set in a quiet neighborhood of modest bungalow-type houses, with haphazard groupings of trailers (called temporary buildings even though they are manifestly permanent), broad lawns, and an asphalt playground bounded by chain-link fencing. On most days children of many colors play tetherball and basketball in the warm sun or sit at picnic tables shaded by tall pines, while overhead, gulls call and palm fronds rustle in the gentle breeze from the Pacific two miles away.

The breeze also brings the acrid taste of diesel exhaust and the stench of raw petroleum from the massive refineries that stretch for nearly half a mile toward the water. Just over the fence, beyond the tetherball courts, an endless double line of trucks—around 3,000 a day—creeps past on the Terminal Island Freeway, most of them hauling steel shipping containers into the Union Pacific rail yard that sprawls a few hundred yards from the Hudson School. Across the road, long trains piled with more containers, marked with block letters reading CHINA SHIPPING, HYUNDAI, YANG MING, and MAERSK, clank slowly along, and a locomotive pulling a line of black chemical tank cars idles. When the refinery nearby has to flare off more than the usual amount of gases, it calls ahead to the school and the students are kept inside. But on any other day there are no such precautions. And children get sick: The air can irritate eyes, noses, throats, and lungs and cause coughing, headaches, dizziness, and nausea. Allergies and asthma attacks flare along with the pollution.

Long Beach is a harbor town. Its city-owned port is the second-largest in the nation, close behind the Port of Los Angeles, its immediate neighbor to the west, which is bounded by the communities of San Pedro and Wilmington at the southernmost tip of sprawling

Los Angeles. Together they make up what would constitute the fifth-largest port in the world and the largest outside Asia, sharing a single, massive harbor embraced by an eight-mile-long breakwater curving out into San Pedro Bay. Inside is a prodigious landscape of infrastructure: 15,100 acres of land and water, interfingered with 60 miles of industrial waterfront bristling with cranes, ships, parking lots, roads, bridges, storage tanks, pipelines, warehouses, and rails. In 2005 the two ports handled nearly 5,800 ships that carried 40 percent of all the seaborne goods imported into the United States (some \$300 billion worth), employing 500,000 people in Southern California and paying \$22 billion in payroll and \$7 billion in taxes.

All manner of traditional bulk cargo passes through: Oil, cars, salt, and steel come into the country while chemicals, plastics, gypsum, scrap metal, machinery, parts, lumber, cotton, and food go out. But most of the action is choreographed around the moving of boxes, the standardized containers that hold 90 percent of the cargo entering the harbor. At the San Pedro Bay ports, they hold mostly the cheap Asian consumer goods that have taken over the world's markets. In 2005 the ports pushed 14 million 20-foot "container units" (many containers are actually 40 feet long) into the Los Angeles Basin, a vast, four-county coastal plain.

Forty thousand truck trips a day are needed to move the boxes from the docks and terminals along a circuit board of roads, highways, and bridges. Some head for the massive truck-to-train "intermodal" facility across from the Hudson School, where the containers are transferred to trains running north to the rail yards east of down-

This China Shipping terminal, below, has reduced its emissions by using cleaner fuels and electrical power—a good thing, since children nearby walk home from school on roads adjacent to polluting oil refineries, right.



town Los Angeles. Others make their way to the narrow, choked Long Beach Freeway, I-710, which hugs the concrete channel of the San Gabriel River before branching out into the vast transportation matrix of the region. Half the cargo is absorbed here; the rest fans out across the country through the steel and asphalt circulatory system of distribution and consumption that sustains the U.S.



economy. As an example, 60 percent of the imported goods shipped to the Chicago area come through Los Angeles.

The San Pedro Bay ports, abetted by interested governments, began investing heavily from 1960 on to capture market share in the new containerized global shipping business. In a region that has seen its leading postwar industries—aerospace, automobiles, shipbuilding, and other heavy manufacturing—gutted in the last few decades, this strategy has paid off handsomely. Shipping volume doubled from 1990 to 2000 and has nearly doubled again since. In 2005, volume was up 8 percent from 2004; in 2006, it rose another 10 percent.

A CONCEIT OF THE NEW ECONOMY IS

that it promises freedom from the smokestacks and sweatshops of the past two centuries. In some swaths of formerly industrial North America, factories have been replaced by Wal-Marts and FedEx vans. But this is only a local illusion, a magic trick of trade and geography, obscuring the underlying fact that the New Economy not only rests on the grimy, polluting old one but propagates, multiplies, and feeds it, spreading it around the world like a pandemic. The off-shoring of manufacturing has moved some of the smokestacks away, but it has stoked countless new ones in the breakneck industrialization and urbanization of the developing world. And all that stuff made abroad has to be brought back to us, on demand, satisfying our ever-greater desire for speed and low cost. We click off our wishes on Web sites, setting in motion diesel engines by the tens of thousands: trucks, loaders, cranes, and locomotives, armadas of little smokestacks toiling to deliver us the goods. Ninety percent of international trade still moves by ship, as it has since the dawn of the Industrial Revolution.

Ships ply the high seas between the developing and developed worlds, slipping easily through the spaces of oversight, rules, and responsibility. They typically burn bunker fuel, a form of low-grade diesel left over from the refining of gasoline and other diesels—lit-

erally the bottom of the barrel, with sulfur content 3,000 times higher than the fuel used in new diesel trucks. One large vessel burning bunker fuel generally emits as much exhaust as 12,000 cars. At the San Pedro Bay ports, a ship can be unloaded and turned around in three or four days, all the while idling its auxiliary engines (called hoteling) to generate power and run equipment. Multiply this by 5,800 ships per year, then add the myriad tugs, barges, and smaller service and passenger vessels that throng the harbors, and you can begin to see the emissions volume from the boats alone. At the dock the containers are unloaded by a boy's fever-dream menagerie of high-rise cranes and four-story forklifts (called top-handlers), then loaded onto trucks or flatcars, shunted into long trains by switching engines, and hauled off by locomotives—all of them diesel powered.

The twin ports now emit more pollution than the top 300 industrial sources and refineries in the Los Angeles Basin combined—in one of the leading power-generating and oil-refining regions of the country. The lion's share comes from ships and boats, which release many times more pollution than all the power plants in Southern California put together.

THE HARBORSIDE COMMUNITIES OF

San Pedro, Wilmington, and West Long Beach are as variegated in ethnicity and national origin as any in intensely polyglot Los Angeles County. The crude machinery of twenty-first-century world trade presses up against people's lives like a dirty storm surge. Jesse N. Marquez, a third-generation Wilmington native and an environmental activist, took me for a tour. Just blocks south of his house, a yellow bungalow on a quiet street, phalanxes of giant cranes and passing ships loom. At the edges of his and other residential neighborhoods, warehouses, refineries, petroleum storage tanks, and rail yards back up to houses and apartment buildings. He told me that, in addition to the smoke, the smog, and the smell, noise and glare from huge overhead lights flood the area 24 hours a day, seven days a week. In unkempt storage yards, walls of empty containers, stacked up to four high, tower over backyards. Locomotives pass by pulling mile-long trains or idle, often for hours. And trucks are everywhere, some of the 15,000 short-haul rigs, nearly all of them decades old and heavily polluting, that pass by each day on choked freeways and access roads, or invade the side streets looking for a faster way onto the jammed 710, blocking traffic, getting stuck in narrow lanes, idling in front of the liquor store while their drivers look for a snack or a bathroom.

Marquez called it the diesel death zone. Driving behind the trucks, passing the refineries, you see and feel the smog and smoke clouds, you breathe sudden, inexplicable miasmas of chemical stench that vanish just as suddenly, your eyes sting and water, your head pings with sharp pains. In days bygone, harbors smelled of rotting fish, creosoted pilings, and the thousand dank or exotic odors of the goods that moved through them: tar, lumber, wheat, or spices. Now the only smells come from petroleum products and their combustion. "We've grown up with it to the point where we think it's normal," Marquez said. "But it's not normal."

The difference between diesel and ordinary exhaust is the soot—inky, greasy, visible particles emitted by typical diesel engines. Researchers have only recently learned that it is what we don't see in these clouds that hurts us most: the fine particulates that make up 94 percent of diesel emissions, which are capable of penetrating deep into lung tissue and causing genetic and cellular damage. In addition to particulate matter, diesel exhaust contains volatile organic compounds like benzene and formaldehyde, as well as nitrogen oxides and sulfur dioxides, precursors to smog. It also contains arsenic, cadmium, dioxin, and mercury, among 40 cancer-causing substances.

Diesel exhaust is responsible for 71 percent of the cancer risk from air pollution in the state of California. The ports of Los Angeles and Long Beach account for more than 25 percent of the cancer-causing diesel exhaust in the region, and emissions have gone up at least 20 percent since 2001. Cancer risk maps show the results vividly: The susceptibility to cancer from air pollution is evident throughout the Los Angeles Basin, but it concentrates alarmingly around the ports, along freeways heavily used by container trucks, and in the inland warehouse and rail yard districts that are the trucks' most frequent destinations. The California Air Resources Board released a report in 2006 that calculated the annual toll of premature deaths attributable to the movement of goods. The number was 2,400 statewide, or six deaths per day.

Damage from diesel exhaust, especially to the lungs, starts early in life. The Children's Health Study, conducted by the Keck School of Medicine at the University of Southern California (USC), followed 1,800 children in 12 Southern California communities for eight years beginning in 1993. It found that exposure to vehicle exhaust increases the risk for asthma and retards lung development in children, perhaps permanently. The study also found that in health, as in real estate, location matters: The worst outcomes came in areas next to ports, freeways, and rail yards. Teenagers in polluted communities were five times as likely to have clinically low lung function as those in low-pollution areas.

"As we see more roads, traffic, and trucks, we're seeing measurable changes in respiratory and cardiovascular function, both in children and in people we hadn't thought of as susceptible before," explained Ed Avol, professor of clinical medicine at USC's Keck

Of Laura Rodriguez's five children, only Zachary, 10, doesn't have asthma. Noel Park, right, a San Pedro resident for 42 years, is finally leaving town.



School and one of the principal investigators of the study.

Laura Rodriguez, a native of Mexico and mother of five who lives in North Long Beach, told me: "*En Long Beach, no se salva*"—no one is safe. She and her family have lived in several different locations here for seven years, some closer to the ports or I-710, some farther away. Now they live in a two-story house on a tree-shaded street whose quiet belies the hazards that stalk the community. Of all her children—Carla, 15; Juliana, 13; Zachary, 10; Jorge, 7; and Angela, 4—only Zach has not been diagnosed with asthma. Carla, who was found to have asthma two years ago, often has attacks in the mornings. At Long Beach Polytechnic High School, she plays water polo in the indoor pool and runs track. She complains to her mother, "I'm tired. I can't run like I used to."

Rodriguez volunteers with the Long Beach Alliance for Children With Asthma, a grassroots community group that educates families about the health threats they face. She helps measure particulate levels and counts traffic on roads adjacent to local schools as part of USC's ongoing study. She attends hearings before government agencies and speaks out. Above all, she keeps her house immaculately clean and tries to keep her children away from obvious sources of diesel soot. Still, she said wearily, "You can't create a bubble. No matter where we go there are trucks and there's pollution."

As the Rodriguez family knows firsthand, the trade-offs of the New Economy are felt more painfully in some neighborhoods than in others. Ed Avol put it this way: "Everybody wants a better job and a plasma TV, but almost nobody thinks about the ramifications."

THE SOLUTION WOULD SEEM STRAIGHT-

forward: Clean up the smoke coming out of the stacks. It is, fundamentally, an air pollution problem, something with which California regulators have a lot of experience, starting with the mandated removal of lead from gasoline in the 1970s. Peter Greenwald, a senior policy adviser for the South Coast Air Quality Management District, one of seven regional subauthorities set up by the state to ensure compliance with air quality standards, believes that existing technologies can cut emissions related to the movement of goods by 90 percent or more. Requiring ships to use low-sulfur fuel would reduce their particulates by 60 percent, which translates to 35 percent of the port's total. Another big gain would come from requiring ships to "cold iron," a naval term for plugging into dockside electrical power while loading and unloading. This would cut pollution by two-thirds if the





Getting the Goods

THE 10 BUSIEST PORTS IN THE UNITED STATES ARE ranked by twenty-foot equivalent units (TEUs)—the number of 20-foot containers transported in and out of the harbor. The largest U.S. ports by far are Los Angeles (approximately 8.5 million TEUs) and Long Beach (7.3 million), dwarfing even the

Port of New York/New Jersey (4.8 million TEUs). The smallest of these 10 ports is Miami (0.5 million). The red lines indicate the movement of cargo inland from the ports of Los Angeles and Long Beach via truck routes, according to volume. The largest arteries carry more than 1 million tons per year.

replacement power was from a coal-fired plant, or up to 100 percent if it was from renewables. Yard equipment and locomotives can burn cleaner fuel and be outfitted with catalytic converters and particle filters, cutting their emissions by up to 90 percent. Rail lines can be extended right to the dockside, eliminating the short-haul trucks, usually the dirtiest and oldest available, that bring the boxes to the intermodal yard. Trucks, responsible for 40 percent of the nitrogen oxides and 31 percent of the particulates from ports, could be required to use cleaner fuel and engines, just as has been done with gasoline car engines, under California's leadership.

But putting the diesel genie back inside the bottle turns out to be vexingly complex because of the structure of the business itself. First, it is international: Ships can freely travel from the sleek, modern quaysides of Rotterdam and Singapore to the outlaw docks of Mogadishu and back again. Problems of legal jurisdiction and political will, to say nothing of antiquated machinery, abound.

Second, the U.S. shipping business is widely dispersed geographically. There are 86 ports in this country, no two operating under the same regulatory controls. Most ports, such as Charleston, South Carolina, and Savannah, Georgia, make no effort to curtail diesel pollution, even though the effects on local communities may be severe; their larger home regions are not in violation of federal air quality standards and thus haven't triggered pollution reduction mandates (with the accompanying threat of lost federal highway dollars for failure to clean up). Southern California, which still has the worst air quality in the nation, perpetually struggles to meet its mandated targets. Ports compete with one another for business, and giving companies a pass on pollution can be a major, if perverse, incentive.

Third, ports are an unusual hybrid of government and business. The ports of Los Angeles and Long Beach are city-owned, and each is under the nominal control of a mayor and city council, yet they are semi-autonomous in matters of policy and finance. (Most West Coast ports are run by cities, while most ports in the East and the South are run by regional, sometimes interstate, authorities.) Port agencies function as landlords, making their money by leasing docks and terminals to shippers and terminal operators; most of their net income goes back into the port rather than into a city's general fund. Ports are public businesses promoting private economic development as a public good, making questions of accountability and oversight especially tricky.

Finally, the structure of the business is Byzantine. In addition to the port agencies, there are terminal operators, shipping companies, manufacturers (some of which, such as South Korea's Hyundai, own their own ships), railroads, depot and storage yard operators, trucking companies (split between big, corporate long-haul operations and mom-and-pop short haulers), distributors, and retailers.

The business tangle mirrors the regulatory system—balkanized by overlapping federal, state, regional, and local jurisdictions. Although the ports of Los Angeles and Long Beach are subject to the environmental standards of 72 federal, state, and local agencies, the current situation is a result of near-total regulatory failure. Those rules that exist are often weak and poorly enforced by agencies that face determined resistance to oversight from the industry. The one agency with the direct ability to effect change, and in many cases holding a monopoly on regulatory authority, is the U.S. Environmental Protection Agency (EPA). But the EPA has been character-

istically lax, especially under the current administration. While it recently adopted a standard for ship fuel for domestically flagged vessels, it has been reluctant to touch foreign-flagged ships—the vast majority—arguing that it lacks authority over “international” commerce. (The administration has not been so shy when it comes to policing international financial transactions and communications, nor in putting customs agents in foreign ports to deter illicit cargo.) After much pressure, and 10 years of delays, the EPA implemented adequate standards for non-marine diesel fuel and new truck engines during the last six months, but it will not come out with even minimal standards for new locomotives for another year. None of these rules address the hundreds of thousands of engines now on the roads and rails with decades of service left.

NOEL PARK, NOW 63, MOVED FROM THE

Westside of Los Angeles to San Pedro in 1965, when it was a declining fishing port with only scattered freight traffic. Since then, he has raised two sons, grown his vintage Corvette business—and watched the ports gobble up swaths of the harbor with landfill islands.

The ports kept expanding. Park recalls picking up a local newspaper in 2000 and reading an article that mentioned that California—10 years earlier, in 1990—had officially listed diesel exhaust as a cancer-causing agent. Stirred, finally, by a sense of betrayal and long-simmering anger, he and his neighbors mobilized the San Pedro and Peninsula Homeowners Coalition, of which he became president. It was just one of many grassroots groups that sprang up in the region to counter what residents saw as the goods-movement industry’s assault on their communities.

“We finally woke up and started reading these reports,” Park said. Environmental Impact Reports (EIRs), prepared as part of the permitting process for port expansion, are required by California law. Park said he read “dozens” of EIRs, all of which listed no “significant” environmental impacts from glare, noise, traffic, or congestion—only air pollution, which, thanks to the steady stream of public health studies being released, could not be concealed. He and his neighbors went to hearings before the Los Angeles Harbor Commission, which sets policy for the port, and spoke out. They were repeatedly brushed aside by port and city officials. “They just chant this mantra: ‘It’s the engine of the economy, it creates all these jobs,’” he recounted. In other words, economic growth was a greater concern than public health.

In a narrow legal sense, the officials were on firm ground. The California Environmental Quality Act allows an entity proposing a project, such as a port agency, to determine whether “overriding considerations” put the public benefits of the project, including economic growth, above the detrimental impacts. Historically, ports had made precisely this claim, and expansion projects went forward. “‘Overriding considerations’ to us means that the port and its tenants need to make money,” Park said, “and if a few of us die, tough sh-t.”

IN 2001 SEVERAL HARBOR-AREA

community groups, including Park’s, approached the Natural Resources Defense Council (NRDC) and the Coalition for Clean Air, which had both become interested in the issue of ports pollution, to see what could be done to stop or at least slow a huge new container terminal being built at the Port of Los Angeles. It was no small project: turning a dirt lot at the base of a hill just north of downtown San Pedro, previously used to store containers, into a 174-acre terminal

for the China Shipping Co., part of a multibillion-dollar international conglomerate. It would bring 150 ships and a million truck trips a year plus locomotives, yard engines, cranes, bright lights, and around-the-clock noise into what had been a relatively quiet corner of the harbor, close against residential neighborhoods.

The port was so accustomed to acting without community consultation that it hadn’t even done an EIR—in effect claiming that the expansion would have no adverse environmental impacts. “They just skipped that step altogether,” said Julie Masters, an attorney and former director of the clean air program in NRDC’s Santa Monica office. Unconvinced by the port’s position, community and environmental groups together challenged the permit process, first in state court, then federal, but were repeatedly thwarted. All the while the port kept building. Finally in 2002, a state appellate court stopped construction—though the project was nearly half finished—until an EIR was prepared.

The decision was a huge victory: No court in the United States had ever before stopped a major port expansion. Still, Masters and her team knew that the port could declare “overriding considerations” and eventually proceed. The delay would be costly, however, so the port had reason to negotiate. “We sat down with the port and the city and talked settlement,” Masters said. They struck a deal: The port could continue to operate the 75 acres it had already built; in return, it would pay



\$50 million over four years for environmental mitigation, as well as switch equipment to clean fuels and electrify the docks so that 70 percent of the ships could plug in at the terminal. Within a few years, China Shipping had converted 17 of its vessels to cold ironing, the first shipping company in the world to use this technology for its container vessels. Last year 71 percent of the firm’s vessels calling in Los Angeles plugged in, reducing the emission of nitrogen oxides and particulate matter for each ship by one ton per day.

In 2002, the same coalition challenged an expansion plan at the Port of Long Beach on the grounds that the EIR the port had filed was inadequate. The Long Beach City Council kicked the application back to the port for a new EIR.

The unprecedented stoppages served notice that harbor communities could no longer be ignored by the ports or the shipping industry. Companies “see the writing on the wall,” said Port of Long Beach spokesman Art Wong. “They know that if they don’t support these kinds of changes, the public will turn against them.” The outcome also demonstrated that alternative technologies such as cold ironing and clean-fuel yard equipment could be embraced by



Yang Ming operates one of Asia's largest container fleets, including this ship, above, in San Pedro Bay. Some vessels are equipped to plug into an electrical power source at dockside, left, reducing their diesel emissions.

industry. At China Shipping's terminal, the manic dance of machines unleashed whenever a vessel is unloaded and loaded again is startling for what it lacks: smoke. A ship plugged into a small barge festooned with cables spews no black clouds, nor do cranes, trucks, and top-handlers running on clean fuels. The air is markedly more breathable than at other port terminals.

On the other hand, the victories were limited: No other terminals were affected; the ports and their tenants simply delayed expansion plans and continued to increase traffic by becoming more efficient and adding nighttime working hours. Five years later, neither port had completed the mandated EIR, yet total business was still on target to triple by 2020 and container throughput to quadruple by 2025. And the ports were already bursting at the seams. In the summer and fall of 2004 a spectacular bottleneck of ships waiting to unload filled San Pedro Bay outside the harbor, with as many as 50 vessels stacked up at a time, each one sending a plume of smoke skyward as it idled.

With pressure visibly mounting, the state government and the ports drafted their own plans to roll back pollution to 2001 levels *and* triple trade traffic by 2020, a heroic achievement even in the imagination. The plans included a laundry list of mostly sensible technical fixes—using cleaner marine fuel, scrubbing ship stacks, cold ironing, replacing 12,000 short-haul trucks, retrofitting locomotives, expanding roads—all good solutions, but not very meaningful without mandatory controls or a means to pay for it all.

Then, in the summer of 2006, legislation drafted by State Senator Alan Lowenthal of Long Beach seemed to offer a solution. The bill proposed a \$30 fee per container at the ports, which would generate \$500 million a year to be split among security, infrastructure expansion, and air quality improvements. This would amount to just

0.77 percent of the goods-movement industry's annual net of \$64.7 billion but would substantially contribute to the \$400 million to \$667 million annual cost of the emission reductions recommended by the California Air Resources Board in its 2004 report on ports pollution. Business groups protested: The California Chamber of Commerce called the bill a "job killer." The National Retail Federation warned that it might push shippers elsewhere, to Canada or Mexico. To which David Freeman, chairman of the Los Angeles Harbor Commission, replied: "They're whistling Dixie." Freeman knows there are no other ports in the hemisphere big enough to handle anywhere near the volume of Los Angeles and Long Beach. The industry, Freeman added, ought to get ready for change: "This is all going to happen, and it's not going to have a huge impact on the price of goods." The billions of dollars it would cost over five or ten years, he said, works out to "two cents on a pair of tennis shoes."

The Lowenthal bill passed, but only barely; then, last fall, Governor Arnold Schwarzenegger vetoed it. Local proponents of the bill, such as Laura Rodriguez, were left feeling frustrated and "impotent," in her words. "Sometimes I think that nothing we do counts." Rodriguez attended a recent Long Beach City Council hearing where officials discussed 10 expansion proposals for port-related facilities. She wishes she could move to Big Bear Lake, a piney ski town in the San Bernardino Mountains, 100 miles northeast of Los Angeles, where her children might breathe more easily. Noel Park, also disillusioned after years of fighting the ports' plans, decided recently to move 10 miles west to the Palos Verdes peninsula, where, according to the cancer risk map he carried around while house-hunting, the air is somewhat cleaner. "I swore to God I was going to live my life out in that house," he said. "I've lived here 38 years." Most of all, he was saddened by the implications of his own departure: "Anyone who takes the trouble to understand the issues leaves. And who's left behind? The people who can't leave. Well, God have mercy on them. If that's not environmental injustice, I don't know what is." 🍀