

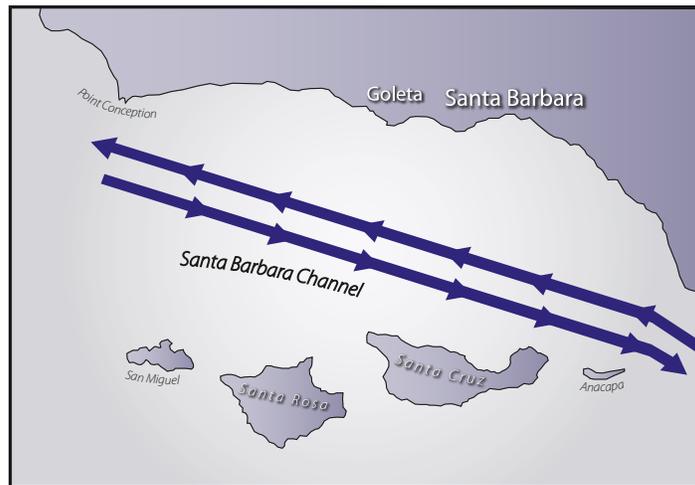
Progress – and Challenges – in Cutting Shipping Emissions

Summer months saw progress on several fronts in the effort to cut emissions from marine shipping, one of the largest uncontrolled human-made sources of air pollution worldwide, and a source of particular concern for Santa Barbara County. Significant challenges emerged as well.

In July, District Board Member Salud Carbajal (County First District Supervisor) attended the National Association of Counties meeting accompanied by District Director Terry Dressler, and introduced a resolution calling for Congress and the U.S. Environmental Protection Agency (EPA) to take action to control shipping emissions. The resolution passed unanimously. Said Carbajal, “It was gratifying to see our fellow counties around the country join us in this critical effort. These ships have been largely unregulated in the past, and we need action at the federal level to control this huge source of air pollution.”

Large ship engines typically burn the dirtiest fuel available, producing toxic air emissions, particle pollution, greenhouse gases, and pollutants involved in the formation of ground-level ozone, or smog, including reactive organic gases, and nitrogen oxides (NOx). While not all of this pollution will affect onshore air quality, the location of shipping lanes in the Santa Barbara

Santa Barbara Channel Shipping Lanes



Northbound and southbound shipping lanes, each a mile wide and two miles apart from each other in the Santa Barbara Channel. These are known as “Shipping Separation Zones,” officially adopted by the International Maritime Organization to guide location and direction of international shipping traffic.

Channel (see map), is such that these ships are traveling only 10 to 15 miles off the county’s coast.

Dressler noted the District has been working for many years to raise awareness of this problem: “Through our Clean Air Plan process we have identified that this pollution, if left uncontrolled, could potentially overwhelm all our onshore efforts to clean the air in this county.” (See Business Focus inside for more on the Clean Air Plan process.)

The District sued EPA in early 2008 challenging the agency’s failure to issue emissions standards for large ship engines; this lawsuit proved unsuccessful. However, the EPA did take action this past summer. The agency

asked the International Maritime Organization (IMO) to create a 230-mile Emissions Control Area around the US coastline, in which ships would have to meet stricter standards. The proposal was accepted in principle at the IMO’s July meeting, and a vote in March of 2010 will determine whether to amend an international shipping treaty to include the area designation.

In June, the EPA for the first time proposed standards for engines on large ocean-going vessels. The District submitted comments in August, calling on the agency to: institute more stringent, technology-forcing standards; implement regulations and incentives to reduce emissions from the existing fleet of large

ships; and extend regulations to foreign-flagged ships (the vast majority of ships going through the Channel) in addition to US-flagged ships.

District Technology and Environmental Assessment Division Manager Tom Murphy said, “We believe EPA has the authority—and the obligation—to regulate foreign-flagged ships.” Murphy remarked, “My perspective is that you can always do more and do it sooner. Just look at what we’ve done onshore. We’ve cleaned up many large sources of air pollution dramatically in the last thirty years.” He added, “And we can’t just look at new ship engines—that puts pollution reductions off in the 30, 40, 50 year timeframe. The technology is here to do more with existing ships today.

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Ozone exceedances in August – see page three.

Shipping Emissions (cont'd)

Technology transfer is what we're all about in the air pollution business. Are there challenges transferring onshore technologies to ships in the ocean? Of course there are. We need to start the process of overcoming them."

The District and other partners encountered some of these challenges recently in a project to test strategies to reduce emissions, including injecting water into fuel, on an ocean-going vessel. While this fuel-emulsification technique has been effective in some onshore applications, it was more difficult on the ship than anticipated. The bunker fuel that ship engines burn is so thick that it has to be heated to flow. The heat caused the water to evaporate as steam, posing new issues to resolve. Murphy said test results will be released in the next few months, and noted, "I see this as a first step in what will be a long process, with many lessons learned."

Other new regulations may impact emissions off the county's coast. On July 1, a new California Air Resources Board (ARB) rule went into effect that required large ships to use low-sulfur fuel when traveling within 24 nautical miles of California's coastline to reduce emissions. Some ships may now be choosing to travel outside the Santa Barbara Channel, in an effort to avoid the requirement to use the more expensive fuel until the final approach to port.

Megan McKenna, a Ph.D. candidate at the Scripps Institution of Oceanography at the University of California at San Diego, is studying underwater noise levels and ship traffic in the Channel. At the beginning of August she observed container

ships going outside the Channel —something she has not seen often before. While oil tankers often go outside the Channel, there are no designated shipping lanes in that area, and container ships rarely take that route. The U.S. Navy Pacific Missile Test Range is located in this area, and an increase in shipping traffic there could be problematic for naval operations.

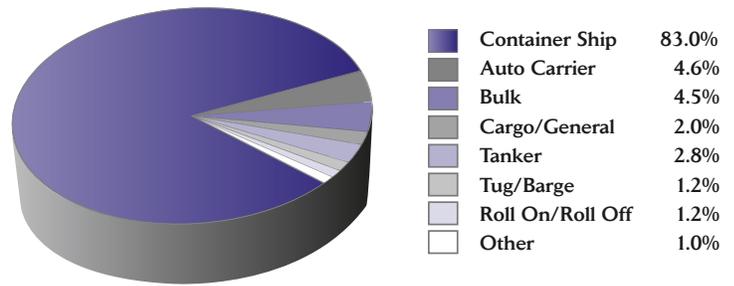
McKenna is studying the acoustic impacts of ships in the channel to determine effects on whale communication. Four instruments on the ocean floor at different locations in the Channel record the underwater sound at a wide range of frequencies to include whale calls and dolphin whistles in addition to the noises made by ships. She notes, "The data so far show that the Santa Barbara Channel is loud." The noise from a ship in the Channel can make the background decibel levels 100 times what they would be without the ship. Whale calls can travel underwater 100s of kilometers when there isn't significant background noise. With loud background noise, that distance could be reduced down to 2 kilometers or less, she reports.

She is combining the underwater acoustic data against data from Scripps equipment onshore in the Coal Oil Point area that records signals from ships passing through the Channel, so she can match noise levels with specific ships. This data could be useful in international development of strategies to quiet the noisiest ships first.

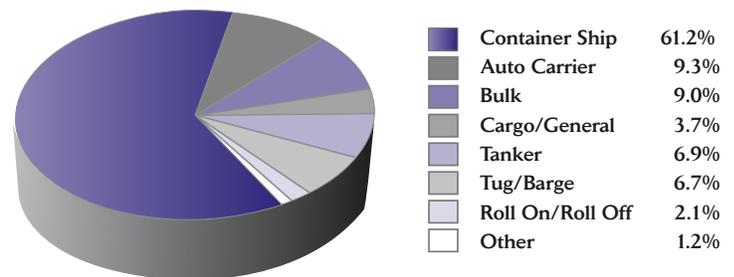
The Scripps data also include

SHIP TYPE ANALYSIS

2005 Total NOx by Vessel Type (Total NOx = 14, 918 Tons)



2005 Total Transits by Vessel Type (Total Transits = 7, 086)



Container ships, estimated to be the majority of the ships that pass through the Santa Barbara Channel, also contribute the majority of the NOx pollution.

speeds of vessels going through the Channel. Proposals are under discussion to require ships to reduce speeds to reduce emissions, and also to reduce the potential for ships to strike whales. Depending on how it is structured, such a regulation could have some unintended consequences. If ships are required to slow down only as they approach ports, for example, they could need to go faster through the Santa Barbara Channel to stay on schedule, with resulting emissions increases off the coast of the county, and impacts on marine life in the Channel.

The District will use data from the Scripps equipment

to estimate marine shipping emissions for the 2010 Clean Air Plan (see article inside for more on this topic). The data will help the District determine the impact of the economic downturn on shipping traffic in the Channel, and on our emissions calculations.

The next year will bring more challenges and hopefully more advances in efforts to cut shipping emissions. Said Murphy, "We have a new administration in Washington with new priorities and a new focus on public health. I'm cautiously optimistic that we are going to see some real progress."

For more information see "Marine Shipping" at www.OurAir.org.

Ozone Standards Exceeded in August

APCD Board Roundup

Following are the highlights of the August Board meeting.

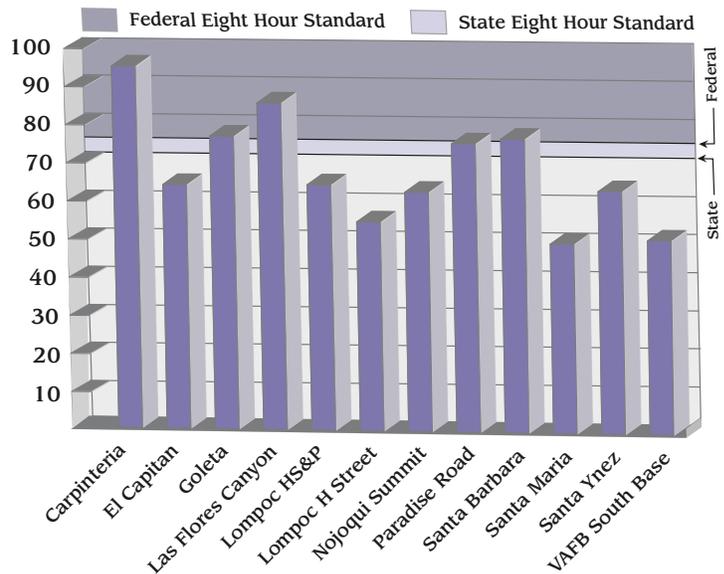
August

- ⌚ Authorized the Control Officer to enter into Memorandum of Understanding with Employees Association for June 29, 2009 through June 27, 2010.
- ⌚ Authorized the Control Officer to enter into Memorandum of Understanding with Service Employees International Union, Local 620 for August 20, 2009 through June 27, 2010.
- ⌚ Adopted a resolution amending the Management Personnel Benefits Policy for Management and Confidential-Unrepresented Employees.
- ⌚ Adopted a resolution that makes necessary findings and determinations in accordance with the California Health and Safety Code to require permits for any agricultural source that voluntarily creates emission reduction credits in Santa Barbara County.
- ⌚ Held a hearing and adopted a resolution that authorizes a vote for Jean Bracy, SDA – Director of Administrative Services, Mojave Desert Air Quality Management District, to the Special District Risk Management Authority Board of Directors.

At the end of August, District monitoring stations recorded exceedances of all three ozone standards: the state one-hour and eight-hour standards, and the federal eight-hour standard. Ozone, a principal component of smog, is formed when nitrogen oxides and reactive organic compounds react chemically in the presence of sunlight and heat. Ozone causes a range of respiratory symptoms, affects lung development in children, and can help cause early childhood asthma.

High ozone levels came during a period of high temperatures August 28-30. (A temperature of 106°F was recorded on August 28 at the Santa Ynez monitoring station.) Hot weather can bring spikes in ozone levels when there are also high levels of ozone-forming pollutants in the air. What makes the 2009 smog season unusual is that there were a few exceedances during a hot period in late April, and then no

Ozone Daily Eight-Hour Maximums August 29, 2009



Monitoring stations in Carpinteria, Goleta, Las Flores Canyon, Paradise Road, and Santa Barbara recorded exceedances of both state and federal eight-hour ozone standards on August 29. The Carpinteria and Las Flores Canyon stations also recorded exceedances of the state one-hour ozone standard on August 29. Ozone standards were also exceeded at some stations on August 28 and August 30.

ozone exceedances at all until the end of August. However it is not unusual to see periods of hot weather and ozone exceedances into late October.

For more information, and to view current and historical ozone levels, see "Today's Air Quality" at www.OurAir.org.

New Faces at the District

Over the summer, the District welcomed two new staff members. Brian Kato (left), an Air Quality Engineer in the Engineering and Compliance Division,

will be doing source testing of emissions at permitted facilities. He has a B.S. in Chemical Engineering from the University of Southern California. Eric Gage, an Air Quality Specialist in the Technology and Environmental Assessment Division, will be working on California Environmental Quality Act (CEQA) reviews of projects. He has a M.A. in Urban and Regional Planning from the University of California at Irvine, and processed permits at the Santa Barbara County Planning and Development before joining the District.





APCD Board Calendar

Board of Directors

- Supervisor Salud Carbajal
First District
Santa Barbara County
- Supervisor Janet Wolf, Chair
Second District
Santa Barbara County
- Supervisor Doreen Farr
Third District
Santa Barbara County
- Supervisor Joni Gray
Fourth District
Santa Barbara County
- Supervisor Joe Centeno
Fifth District
Santa Barbara County
- Mayor Russ Hicks
City of Buellton
- Vice Mayor Al Clark
City of Carpinteria
- Mayor Lupe Alvarez
City of Guadalupe
- Councilmember Cecilia Martner
City of Lompoc
- Mayor Marty Blum
City of Santa Barbara
- Mayor Larry Lavagnino
City of Santa Maria
- Councilmember Ed Skytt
City of Solvang
- Mayor Pro Tem Eric Onnen, Vice Chair
City of Goleta

All meetings start at 1:30 p.m.
For final meeting agendas, call the
APCD Board Clerk, 961-8853.

October 15
Board of Supervisors'
Hearing Room
105 East Anapamu Street
Santa Barbara, California 93101

December 17
Board of Supervisors'
Hearing Room
105 East Anapamu Street
Santa Barbara, California 93101

*The Calendar for 2010 will be set in
December.*

Community Advisory Council

The APCD Community Advisory Council meets monthly at the Days Motor Inn in Buellton. The public is welcome. For more information, call Linda Beard, 961-8853.

Schools Save Energy, Cut Traffic and Pollution

The District launched a new mini-grants program for county teachers in August, partnering with the Santa Barbara County Education Office, with support from the Southern California Gas Company. The program provides \$200 grants to county 4th-12th grade teachers for projects with their students in either of two areas: reducing energy use at the school; or promoting alternative transportation options to reduce vehicle traffic and pollution at the school.

Saving energy reduces pollution associated with energy production, and can help schools save on energy costs. According to the California

Energy Commission, most schools spend more on energy than on school supplies, and can employ simple conservation strategies to cut energy costs by 20 percent or more.



Reducing vehicle traffic at schools not only reduces air pollution at the site, it can help reduce the number of accidents near schools, and make it safer for students to walk or bike to school. According to California's Safe Routes to School program, thirty years ago, 60 percent of children living within a 2-mile radius of a school walked or bicycled to school. Today, that number has dropped to less than 15 percent.

The District has partnered with the Education Office on teacher grants programs for several years. In the past, grants were provided for the development of curricula or lesson plans educating students about our atmosphere and air pollution. This year's new program was developed in coordination with an additional partner, the Southern California Gas Company, in response to teachers' interest in working on environmental initiatives at school sites.

For more information, see www.OurAir.org/teachers.htm.



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Air Quality Advisory Information
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On the Air is a quarterly newsletter written by Mary Byrd, published by the Community Programs Section of the Santa Barbara County Air Pollution Control District.

For further information on items in this newsletter, or to be added to our subscription list, please call Bobbie Bratz, 961-8890 or Email bratzb@sbcapcd.org.



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Planning for Clean Air

The District is currently developing its 2010 Clean Air Plan, the three-year update required by the state to show how the county will reduce emissions to meet the state eight-hour ozone standard. Staff will be taking draft chapters to the District's Community Advisory Council, made up of community members appointed by the District's Board, for review and comments starting early next year.

Clean Air Plans provide an overview of air quality and sources of air pollution, and identify regulations needed to meet standards. Plans influence development of rules and

programs at the District and also affect a range of activities outside the District. The schedule for plan development is outlined by state and federal requirements, and is influenced by air quality. The county is considered in nonattainment of the state eight-hour ozone standard, and in attainment of the federal eight-hour ozone standard, and the state one-hour ozone standard.

The Plan will include a comprehensive inventory of pollutants involved in the formation of ozone, including nitrogen oxides (NOx) and reactive organic compounds. The 2010 Plan will also include

for the first time an inventory of county emissions of carbon dioxide (CO₂), a greenhouse gas contributing to global climate change, for a new climate protection chapter. The inventories will be based on 2007 data for industry and business sources and for vehicle emissions (vehicle emission data are provided by the Santa Barbara County Association of Governments). The climate protection chapter will be informational, and not regulatory; the goal is to provide a baseline CO₂ inventory as a starting point to track the county's progress in reducing greenhouse gases. CO₂ is the most prevalent greenhouse

gas, and also the pollutant for which the District has the most accurate data. Other greenhouse gases will not be inventoried at this point.

It was through the process of developing emissions inventories for past Clean Air Plans that the District first identified the tonnage of emissions of smog-forming pollutants from large ships going through the Santa Barbara Channel. In the 2007 Clean Air Plan, it was estimated that ships were contributing roughly 40 percent of the total emissions of NOx in the county as of 2000; the Plan projected that these ships, if left uncontrolled, would

(continued on page back)

Cash for Cleaner Engines

The District announced in September that almost \$550,000 from the state's Carl Moyer Program (Year 11) is now available for use in the county for repowers and retrofits of diesel

engines, and purchase of cleaner engines in heavy-duty vehicles. During the past ten years the District has funded multiple county projects with more than \$5,000,000 from the Moyer

Program and motor vehicle registration fees, reducing almost 1,200 tons of air pollutants.

County businesses are encouraged to apply for grant funds. Projects will be evaluated for funding on a first come, first served basis considering criteria including cost-effectiveness, project mix, viability, timeliness, and past performance history.

Equipment categories eligible for grant funding include:

- On-road vehicles
- Off-road equipment
- Marine vessels
- Agricultural engines
- Other: forklifts, airport ground support equipment, locomotives, etc.
- Alternative-fueled heavy-duty vehicles for certain applications.

For applications and more information on these programs, see www.OurAir.org/funding or contact Al Ronyecz at axr@sbcapcd.org or 805-961-8877.



The District recently helped fund replacement of an older diesel engine in a commercial fishing boat with a 2008 clean-diesel engine that will produce almost one ton less pollution over the next three years than the engine it replaced. Said Michael Candy, owner of the *Salisipuedes* (above), "I am real happy with the new engine and the way it performs. I get more power, and can spend more time out on the water. I'd definitely recommend this grant program to other fishing boat owners."

CASH for Cleaner Engines



www.OurAir.org/funding

Cleaner School Buses

Since 2001, the District has funded the replacement of twelve school buses in the county with cleaner buses at the Blochman, Cuyama, Goleta, Guadalupe, Santa Maria, and Orcutt school districts. An additional twenty-one buses operated by the Student Transportation of America, and by Carpinteria, Cuyama, and Goleta School Districts, have been fitted with particulate traps. Taken together, over the life of the projects, these school bus projects will cut more than 30 tons of NOx and particulate matter from diesel school bus exhaust.

Funds used have come from motor vehicle registration fees, the state's Lower Emission School Bus Program, the California Energy Commission, and Guadalupe Dunes Mitigation funds. Additional projects will be funded in the coming year, with the oldest school buses slated for replacement first.

For school bus funding information, contact Jim Fredrickson at jbf@sbcapcd.org, or 805-961-8892.



Jerry Sitton, Transportation Manager with Santa Maria Joint Union High School District, with one of two new 2008 school buses with clean-diesel engines purchased with the help of funding from the District. The two buses will reduce 2.5 tons of emissions of NOx, reactive organic gases, and particulate matter over five years as compared with the 1980 diesel school buses they are replacing. The District also recently funded replacement of 1984 and 1986 buses at Goleta Union School District with two 2009 clean-diesel buses, saving 1.4 tons of emissions of NOx, reactive organic gases, and particulate matter over five years.

Planning (cont'd)

contribute 75 percent of the NOx emissions by 2020.

These projections were done during a period of growth in marine shipping, and with the assumption that this growth would continue. The projections will be adjusted for the 2010 Clean Air Plan to reflect the reduction in shipping activity resulting from the worldwide economic downturn. This adjustment will be challenging. Economic experts project that the ports and shipping traffic may see a modest recovery in 2010, with more growth by 2011, but predictions vary and depend on complicated factors. Phase-in of new regulations to curb shipping emissions will also need to be considered in projecting emissions from large ships out into the future.

For more information, see "Clean Air Plans" at www.OurAir.org.

In the past three years, Santa Barbara County's air has been significantly affected by smoke and ash from six wildfires:

 Day Fire (started September 4, 2006, burned 162,700 acres)

 Zaca Fire (started July 4, 2007, burned 240,000 acres)

 Gap Fire (started July 1, 2008, burned 9,443 acres)

 Tea Fire (started November 13, 2008, burned almost 2000 acres and 210 homes)

 Jesusita Fire (started May 5, 2009, burned 8,733 acres and 80 homes)

 La Brea Fire (started August 8, 2009, burned more than 89,000 acres).

Fire Season

Working with the County's Public Health Department, the District has issued air quality advisories throughout this period, starting September 17, 2006, when smoke from the Day Fire affected the county's air.

Fires have started in months ranging from May to November, and high winds have created periods of poor air quality as late as the end of December by stirring up ash and soot particles even after fires were out.

Rather than think in terms of a fire season that is confined to a period of a few months, it may be more useful to act during the periods with no fires to prepare for the next wildfire or wind event. Some suggestions for being well prepared are:

- Create defensible space around your home or business: see Santa Barbara County Fire Department's website www.sbcfire.com.
- Prepare a Wildfire Action Plan complete with emergency phone numbers and an evacuation checklist (see the Fire Department website for guidelines).
- If you are near a burned area, see flooding prevention and preparation information at www.countyofsb.org.
- Learn more about air quality effects, and subscribe to air quality advisories: www.OurAir.org/subscribe.htm.