John LOCKE FOUNDATION

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Lung Association Chokes

Another Year of Misleading North Carolinians

Summary: Each year on May 1, the American Lung Association (ALA) releases its "State of the Air" report and each year the report misleads the public by exaggerating the data and issuing "grades" that are meant more to scare the public than to inform it. For counties across North Carolina, the ALA claims up to 900 percent more high-ozone days than actually occurred. Furthermore, it is not unusual for the ALA to give grades of F to counties that are having no problem meeting EPA guidelines. In reality, ozone exceedances dropped by 85 percent from 2003 to 2004, the fewest since monitoring began.

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The American Lung Association (ALA) recently published the 2005 installment of its annual State of the Air report.[1] Despite continuing air quality improvements and historically low pollution levels, the report is caustic and alarmist. ALA's power and funding depend on maintaining public fear and outrage about air quality. But pollution levels continue to decline. *State of the Air*'s phony portrait satisfies ALA's institutional needs rather than the public's need for good information.

Recent air quality improvements are extraordinary. Days exceeding the Environmental Protection Agency's (EPA) tough new eight-hour ozone standard dropped more than 50 percent nationwide between 2003 and 2004, and more than 85 percent in North Carolina, even though 2003 was itself a record-low year. The 2003 and 2004 ozone improvements were partially due to cool, wet weather. Nevertheless, other years have had weather unfavorable to ozone formation, but none have had ozone levels anywhere near as low as the ones recorded for 2004. Ongoing declines in ozone-forming pollution are the main reason for the long-term downward trend. The last five years include the four-lowest ozone years since national monitoring began in the mid 1970s, suggesting that something more than random weather variation explains recent air quality improvements.

Levels of fine particulates ($PM_{2.5}$) are also at record lows. In both North Carolina and the nation, annual-average $PM_{2.5}$ levels declined about 14 percent between 1999 and 2004. All of North Carolina complies by a large margin with EPA's standard for daily $PM_{2.5}$ levels, and 38 of 40 monitoring locations comply with the annual $PM_{2.5}$ standard. The remaining two locations, which are in Lexington and Hickory, would come into compliance if they reduce average $PM_{2.5}$ by just one to two percent.

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Emissions from motor vehicles and power plants — the main sources of particulate- and ozone-forming pollutants — continue to decline, ensuring continuing progress on air quality.[2]

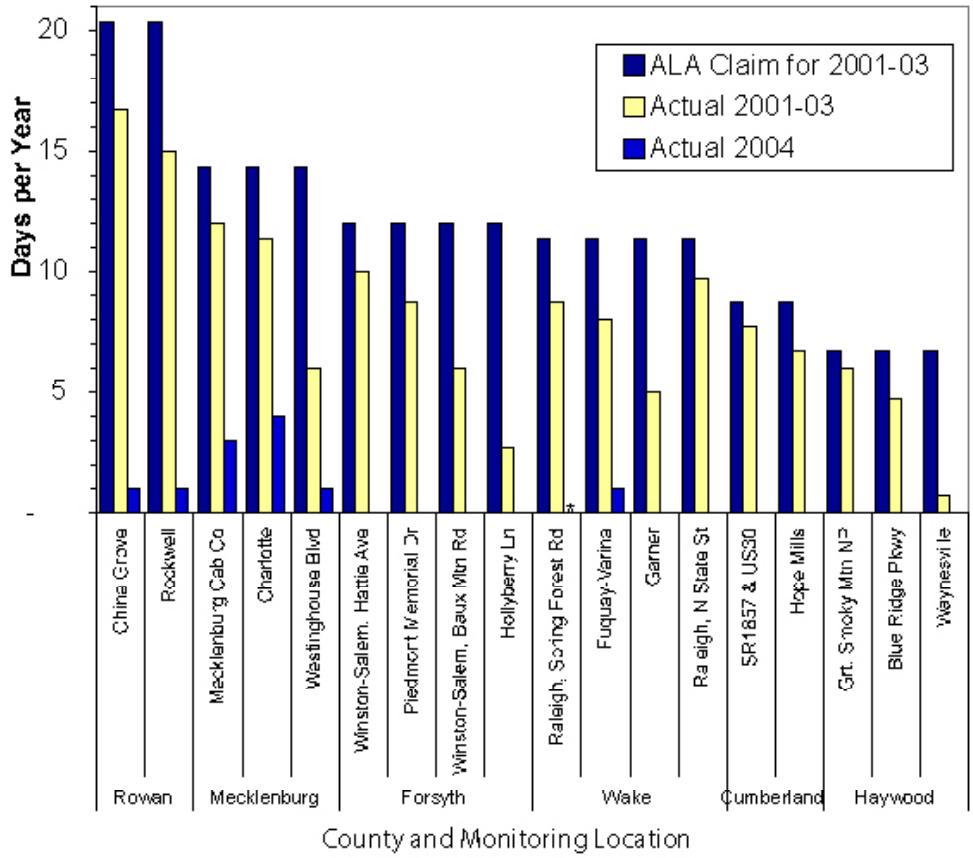
Readers of *State of the Air* learn none of these facts. The report does not even mention 2004's record-low air pollution levels. It gives the impression that air quality will worsen in the future unless the nation adopts new pollution-reduction requirements. However, the report delivers its most detailed misinformation in its portrayal of current air quality. ALA greatly exaggerates the frequency of high air pollution levels and the number of people who live in areas that exceed EPA's air pollution standards.

Problems with ALA's Grading System

Figure 1 compares ALA claims against actual ozone readings for several North Carolina counties. The vertical axis shows the number of days per year each monitoring location exceeded EPA's eight-hour ozone standard from 2001 to 2003. The dark bars show ALA's claim, while the light bars show the actual monitoring data. Note that ALA claims, depending on the location, between 10 percent and 900 percent more ozone exceedance days than ever actually occur. Figure 1 also presents ozone data for 2004, which had the lowest ozone levels since measurements began in the 1970s. Though not mentioned in *State of the Air*, 38 of the state's 46 ozone monitors never exceeded the eight-hour ozone standard in 2004.

No matter how high or low a county's ozone levels, it is likely to get a failing air quality grade from ALA. Figure 2 compares eight-hour ozone levels during the last few years with EPA's standard. County names are along the bottom of the graph. A county can appear more than once if it has more than one ozone monitoring site. Letters along the top of the graph represent ALA's ozone grade for a given county. Ozone levels are presented as averages for 2001-2003, 2002-2004, and 2004 alone. The dotted line marks EPA's standard. Note that almost all counties in the state received a failing grade from ALA, regardless of their ozone levels. ALA even gave F's to some areas that complied with EPA's standard during 2001-2003. Based on 2002-2004 data, many more counties complied with the standard, but still received an F. And based on 2004 alone, the most recent year, virtually the entire state was well below EPA's standard.

Figure 1. ALA Claim vs. Actual Ozone Levels in North Carolina Counties



Notes and Sources: The graph displays ALA's claims about the number of days per year exceeding EPA's eight-hour ozone standard during 2001-03, along with the actual number of exceedance days during 2001-03 and 2004. There were no data for 2004 at the Raleigh, State Street. site, which is marked with an asterisk for that reason. Ozone data were downloaded from EPA's AirData database, http://www.epa.gov/air/data/repsus.html?us~usa~United%20States. ALA grades are from *State of the Air 2005*.

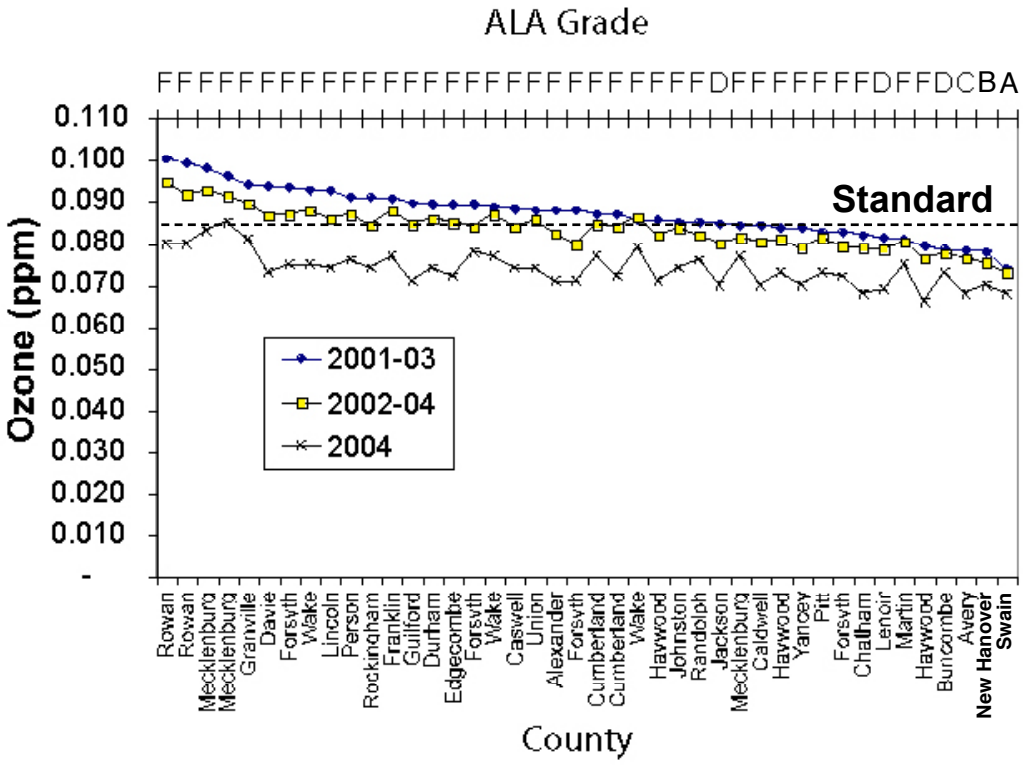
For particulate matter, the problems with *State of the Air* go much deeper than merely exaggerating air pollution levels or counting clean areas as dirty. All of North Carolina complies with EPA's standard for daily $PM_{2.5}$ levels. Yet only 7 of 31 counties received an A grade from ALA. ALA bases its grades on a much tougher daily $PM_{2.5}$ standard than EPA's. The federal standard for maximum daily $PM_{2.5}$ is 65 micrograms per cubic meter (ug/m^3), but ALA uses a standard of 40 ug/m^3.

ALA can't take all of the blame for exaggerating $PM_{2.5}$ levels. EPA helped by setting its Air Quality Index *warning* level at 40 ug/m^3, departing from past practice with all other pollution standards of issuing an AQI warning only when pollution levels exceed the actual level of the federal standard. EPA thus created a much

tougher "shadow" $PM_{2.5}$ standard without going through the more rigorous review process required for legally binding air pollution standards. But having the shadow standard allows regulators and activists to create the appearance of frequently dangerous $PM_{2.5}$ levels even as virtually the entire nation actually complies with EPA's health standard.

Figure 3 shows the two highest daily $PM_{2.5}$ readings in each North Carolina county during 2001-2004. Note that even the worst day at the worst location in the state did not exceed EPA's standard. ALA's grade for each county is listed along the top of the graph. Note that despite the state's low $PM_{2.5}$ levels in virtually every location being monitored, most counties received grades of B, C, or D.

Figure 2. Ozone Levels in North Carolina Relative to the Federal Eight-Hour Ozone Standard and ALA Air Quality Grades



Notes and Sources: The graph displays 8-hour ozone levels for three time periods, 2001-03, 2002-04, and 2004. In each case, the value plotted is the average of the fourth highest 8-hour ozone level for each year in the averaging period. EPA uses the fourth highest value to determine compliance with the standard. The dotted line marks EPA's 8-hour ozone standard of 0.085 ppm. The letters along the top of the graph are the American Lung Association's air quality grade for each county. Counties can appear more than once in the graph if they have more than one ozone monitoring location. Ozone data were downloaded from EPA's AirData database, http://www.epa.gov/air/data/repsus.html?us~usa~United%20States. ALA grades are from *State of the Air 2005*.

Gauging Health Risks

Air quality is far better than ALA would have people believe, and it will only continue to improve as already-adopted requirements continue to reduce emissions from motor vehicles and industry. Even so, many North Carolinians still live in areas with pollution levels that violate EPA's health standards. ALA creates the impression that all of these people are suffering serious health consequences or even death. For example, in a press release on *State of the Air*, North Carolina ALA claims, "New evidence shows that more groups are at risk from air pollution and that the health risks are even more serious than experts previously believed."[3] In fact, EPA's pollution standards have become so stringent that exceeding them has few significant implications for the public's health.

For example, EPA estimates that even large ozone reductions will result in tiny health improvements. In a recent study published in the journal *Environmental Health Perspectives*, EPA researchers estimated that reducing ozone from levels during 2000-2002 down to the eight-hour standard would reduce asthma emergency room visits by only 0.02 percent and respiratory hospital admissions by 0.04 percent.[4] Whatever public health benefits are available from lowering ozone, virtually all of them have already been achieved.[5] North Carolina ALA also neglects to point out that hospitalizations for asthma attacks are *highest* in North Carolina counties that have the *lowest* ozone levels.[6]

Both ALA and EPA claim that current, historically low levels of $PM_{2.5}$ are killing tens of thousands of Americans each year, but they ignore weaknesses in the studies EPA used to set its $PM_{2.5}$ standards, and contrary evidence from other studies. For example, the American Cancer Society study, which provides the main support for EPA's annual $PM_{2.5}$ standard and the mortality claims, reported that $PM_{2.5}$ kills men, but not women; those with no more than a high school education, but not those with at least some college; former smokers, but not current or never smokers; and people who say they are moderately active, but not those who say they are sedentary or very active.[7] These biologically implausible results suggest that the claimed harm from $PM_{2.5}$ is really the result of statistical confounding, rather than a real cause-effect relationship. EPA and ALA have also ignored a study of 50,000 veterans with high blood pressure that reported no relationship between $PM_{2.5}$ levels and risk of death.[8]

Researchers have reported related problems with studies of short-term $PM_{2.5}$ health effects, also ignored or glibly dismissed by ALA and EPA.[9] In any case, all of North Carolina is on the verge of statewide attainment of EPA's particulate standards—a

fact not revealed in *State of the Air*.

Even as pollution continues to decline, activists' claims about pollution levels and risks have become ever more urgent and extreme. ALA and other activists depend on public fear and outrage over air pollution to maintain their political power and keep the donations flowing. The *State of the Air* reports seem to reflect those incentives. In reality, air pollution affects far fewer people, far less often, and with far less severity than regulators and environmental activists would care to admit.

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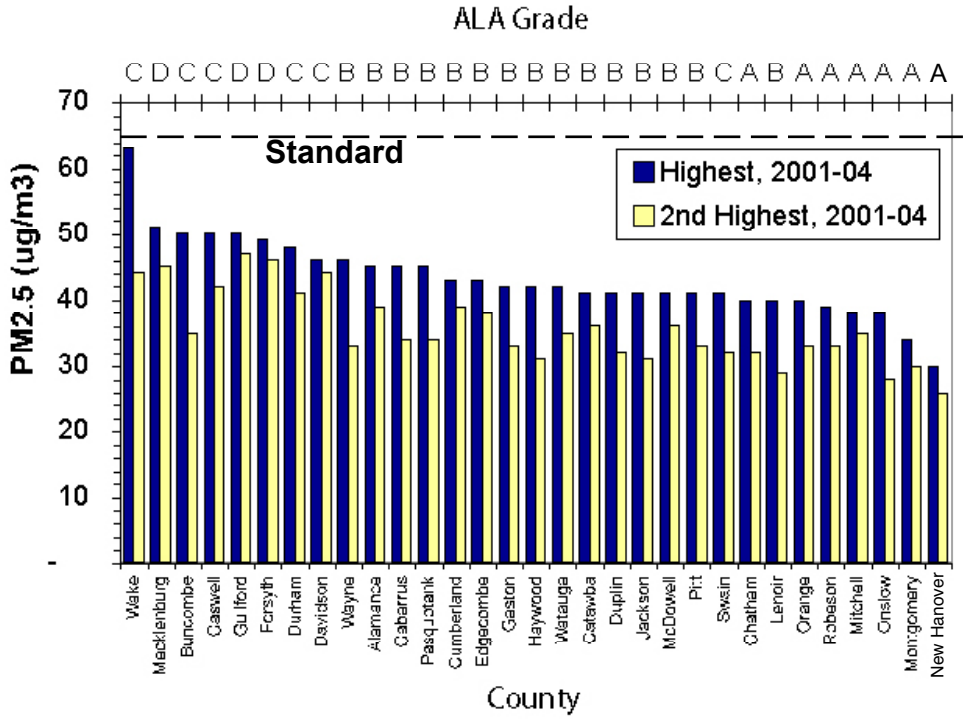
Figure 3. Particulate Levels in NC Relative to the Federal Particulate Standard and ALA Air Quality Grades



Notes and sources: The graph displays the highest and second highest daily $PM_{2.5}$ readings recorded during 2001-04 in each North Carolina county that has at least one $PM_{2.5}$ monitoring site. The dotted line marks EPA's daily $PM_{2.5}$ standard of 65 micrograms per cubic meter (ug/m^3). $PM_{2.5}$ data were downloaded from EPA's AirData database, http://www.epa.gov/air/data/repsus.html?us~usa~United%20States. ALA grades are from *State of the Air 2005*.

Notes

1. American Lung Association, *State of the Air* (Washington, DC, 2005), http://www.lungnc.org/sota/2005/sota05_final.pdf.
2. For a discussion and listing current and upcoming air pollution requirements, see http://www.techcentralstation.com/050304D.html and also http://www.techcentralstation.com/082703A.html.
3. The NC ALA press release is posted here: http://www.lungnc.org/sota/2005/nc-sota-2005-press-release.pdf.
4. B. J. Hubbell, A. Hallberg, D. R. McCubbin et al., "Health-Related Benefits of Attaining the 8-Hr Ozone Standard," *Environmental Health Perspectives* 113 (2005): 73-82, B. J. Hubbell, A. Hallberg, D. R. McCubbin et al., "Health-Related Benefits of Attaining the 8-Hr Ozone Standard," *Environmental Health Perspectives* 113 (2005): 73-82. The paper does not provide these percentage changes in health effects. However, it does provide (1) estimated numbers of cases avoided for each health effect due to ozone reductions, and (2) the rate at which each health effect occurs in the U.S. population. Multiply the population rate by the U.S. population to get the total number of cases for each health effect. Then cases avoided by ozone reductions can be divided by total cases to get the percentage reductions due to attaining the 8-hour ozone standard.
5. For more details on the health effects of typical U.S. ozone levels, and a critique of exaggerations by activists and regulators, see J. Schwartz, *Rethinking the California Air Resources Board's New 8-hour Ozone Standard*, (Washington, DC: American Enterprise Institute, March 2005), http://www.joelschwartz.com/pdfs/SchwartzAEI_CARBozonestandard.pdf.
6. For a chart showing this, see J. Schwartz, *Clearing the Air in North Carolina* (Raleigh, NC: John Locke Foundation, August 2004), http://www.johnlocke.org/acrobat/policyReports/schwartz_report-jc.pdf.
7. C. A. Pope, 3rd, R. T. Burnett, M. J. Thun et al., "Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution," *Journal of the American Medical Association* 287 (2002): 1132-41.
8. F. W. Lipfert, H. M. Perry, J. P. Miller et al., "The Washington University-EPRI Veterans' Cohort Mortality Study," *Inhalation Toxicology* 12 (suppl. 4) (2000): 41-73.
9. G. Koop and L. Tole, "Measuring the Health Effects of Air Pollution: To What Extent Can We Really Say That People Are Dying from Bad Air?" *Journal of Environmental Economics and Management* 47 (2004): 30-54. For a review of this problem, also see S. H. Moolgavkar, "A Review and Critique of the EPA's Rationale for a Fine Particle Standard," *Regulatory Toxicology and Pharmacology* in press: \l "description" doi:10.1016/j.yrtph.2005.02.003 (2005).