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Snowmobiles: Environmental Standards and Access to National Parks

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James E. McCarthy
Specialist in Environmental Policy
Resources, Science, and Industry Division

Congressional Research Service

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Summary

The use of snowmobiles in national parks has been controversial because of the potential impacts on wildlife and the absence of standards for their emissions and noise. This report focuses on the emissions and noise issues. In November 2006, the National Park Service released a new draft of a final Winter Use Plan for Yellowstone National Park. This latest attempt to address snowmobile access proposes to allow up to 720 snowmobiles per day into the park, provided that they meet noise and emission standards and that the riders are accompanied by commercial guides. Similar proposals have been opposed by environmental groups and the vast majority of public commenters in the past, who argue that access should be limited to snowcoaches (essentially vans that operate on treads).

Most current model snowmobiles emit significant quantities of pollution. In one hour, a typical snowmobile emits as much hydrocarbon as a 2001 model auto emits in about two years (24,300 miles) of driving. On November 8, 2002, the Environmental Protection Agency (EPA) promulgated regulations limiting air emissions from snowmobiles. These regulations required a 30% reduction in emissions beginning in 2006, with more stringent standards (requiring 50% reductions) effective in 2010 and 2012. The standards were challenged in court by both the snowmobile manufacturers and environmental groups and were vacated in part and remanded to EPA in part by the Court of Appeals for the D.C. Circuit, June 1, 2004. EPA has not promulgated any standards for snowmobile noise.

Regarding national parks, the National Park Service has allowed snowmobile use in 43 units of the park system, in many cases in apparent violation of Executive Orders from the Nixon and Carter years. Outside of Alaska (where snowmobiles are permitted in most national parks by law), the most popular national park for snowmobiling has been Yellowstone, which saw more than 87,000 snowmobile visits in the 2001-2002 winter season. Under the Clinton Administration, the National Park Service decided that the emissions and noise from snowmobiling were incompatible with protecting the park, and promulgated rules that would have phased out snowmobiles from Yellowstone in the winter of 2003-2004. The Bush Administration revisited these rules and announced modifications in March 2003. The modifications would have allowed 950 cleaner, quieter snowmobiles to enter Yellowstone Park per day. These rules and the Clinton Administration action have been the subject of conflicting court rulings: a federal court in Wyoming has vacated and remanded the Clinton Administration's phaseout, while a D.C. federal court has vacated and remanded the Bush Administration rules. For the last three winters, Yellowstone and two neighboring park units have operated under a temporary plan that permitted 720 snowmobiles per day in Yellowstone, but set standards for their emissions and required that snowmobilers be accompanied by commercial guides.

Efforts to reduce snowmobile emissions and noise remain contentious. This report discusses snowmobile access to the parks, snowmobile emissions, EPA's emission standards, and congressional efforts to address these issues.

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During the final year of the Clinton Administration, proposals by the National Park Service to enforce long-standing policies that regulated the use of snowmobiles in national parks raised a number of questions regarding the potential regulation of such vehicles. These questions continue to be debated, as the National Park Service (NPS) explores optional winter use plans for Yellowstone and other units of the national park system, and as various parties challenge the actions of the NPS in court.

National Park System units account for only about 3% of the land mass of the United States and possess few trails and roads suitable for snowmobiles, compared to areas available on other federal lands; but — for both proponents and opponents — the question of snowmobile access to the parks has taken on a far greater importance. To the snowmobile industry and to many in communities neighboring national parks, "Snowmobiling is an important part of the economic engine that supports northern communities, winter tourism."[1] To environmental groups, snowmobiling "is one of the most environmentally devastating recreational activities permitted by the Park Service .... resulting in adverse impacts to Park wildlife, air and water quality, vegetation, Park ecology, and Park users."[2] Underlying the debate are broader questions concerning regulation of emissions and noise from the vehicles and the degree to which restrictions may serve as a precedent or stigma affecting snowmobile and motorized recreation[3] use more generally.

Snowmobile Use in National Parks

In the 1990s, snowmobiles were allowed access to 43 units of the National Park System, including such major parks as Yellowstone, Grand Teton, Rocky Mountain, Acadia, Zion, Mount Rainier, and Sequoia. While numerous park units allowed such access, recreational use of snowmobiles has not been widespread in the park system as a whole. The National Park Service administers 388 units (parks, seashores, monuments, etc.). Of these, 345 (89%) have not been open to snowmobiles. Many units are located in climates unsuitable for them or are too small to be used for such

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[1] Statement of Ed Klim, President, International Snowmobile Manufacturers Association, at U.S. EPA Public Hearing, Washington, D.C., October 24, 2001.

[2] Petition to Prohibit Snowmobiling and Road Grooming in National Parks, submitted to the National Park Service, January 21, 1999, by Bluewater Network and 60 other environmental groups. A copy of the petition is attached to the testimony of Sean Smith, Public Lands Director, Bluewater Network, submitted to the Subcommittee on National Parks, Historic Preservation and Recreation, Senate Energy and Natural Resources Committee, May 25, 2000.

[3] Motorized recreation includes all-terrain vehicles, off-road motorcycles, other off-highway vehicles, and personal watercraft, in addition to snowmobiles.

recreation. Others (e.g., Glacier National Park and Yosemite) have banned snowmobiles since the 1970s. According to the National Park Service, use of snowmobiles outside of Alaska has mostly been concentrated in five units of the park system: Yellowstone National Park, Voyageurs National Park, Rocky Mountain National Park, Pictured Rocks National Lakeshore, and the John D. Rockefeller Memorial Parkway. Yellowstone accounted for about 40% of the snowmobile visitors at these five parks, with a total of 76,571 in the 1999-2000 winter season.[4]

Comparative data for all five of these units are not available for years after 1999-2000. One of the five, Rocky Mountain National Park, has closed all but one snowmobile route since 2004 – the one route remaining being a 2-mile trail that provides access to National Forest land heavily used by snowmobiles. Snowmobile visits to Yellowstone increased during the 2000-2001 and 2001-2002 winter seasons, peaking at 87,206 in the latter winter. In subsequent years, snowmobile visitors to Yellowstone plummeted, to a low of 24,049 in 2004-2005. Changes in access policy (described later in this report) as well as drought and low snow pack in recent years contributed to the decline. Two other Yellowstone area park units, Grand Teton National Park and the Rockefeller Memorial Parkway, experienced an even more steep decline, from a combined 35,000 snowmobile visits in 2000-2001 to about 7,500 in 2004-2005.[5]

Park Service Policy on Snowmobile Access

Although recreational access by snowmobiles has been permitted in units of the national park system, the Park Service, in the late 1990s, concluded that such use has generally been in violation of Executive Orders 11644 and 11989, issued by Presidents Nixon and Carter respectively. The Nixon Order directed that use of off-road vehicles on public lands "be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands."[6] It specified that off-road vehicle "areas and trails shall be located in areas of the National Park system ... only if the respective agency head determines that off-road vehicle use in such locations will not adversely affect their natural, aesthetic, or scenic values," and it directed the Park Service to "monitor the effects of the use of off-road vehicles" and to rescind or limit this use "as necessary to further the policy of this order."

In January 1999, the Park Service received a rulemaking petition from the Bluewater Network and 60 other environmental organizations seeking a ban on snowmobiles from all units of the National Park Service. In response, the Service surveyed units of the System to assess the extent to which they were complying with

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[4]U.S. Department of the Interior, National Park Service, Source .....

[5]Data are available for each of the years 1996-1997 to 2005-2006 in *Winter Use Plan, Draft Environmental Impact Statement, Yellowstone and Grand Teton National Parks , John D. Rockefeller, Jr. Memorial Parkway*, Cooperating Agency Review Draft, November 2006, pp. 129, 135 at [http://mms.nps.gov/yell/pdfs/winteruse/deis/abstract_toc_chapters1-3.pdf].

[6]Executive Order 11644, "Use of Off-Road Vehicles on the Public Lands," 37 *Federal Register* 2877, February 9, 1972.

the Executive Orders. According to Interior Department testimony: "The results graphically demonstrated that the National Park Service was not complying with its statutory and regulatory mandates.... Consequently, maintaining the status quo with regard to snowmobiling was simply not an option."[7] On April 27, 2000, the Department of the Interior and the National Park Service announced that "snowmobiling for general recreational purposes will be prohibited throughout the Park System, with a limited number of narrow exceptions."[8] By July 2000, the Department had backed away from its strict enforcement stance with a clarification: there would be no snowmobile ban in park units pending a formal rulemaking and public comment period, and snowmobile practices prior to the April 2000 announcement (i.e., access to more than 40 parks) would continue through the 2000-2001 winter season.[9] NPS has taken no further action to enunciate a general policy.

Since the summer of 2000, the focus has been on Denali National Park in Alaska and the Yellowstone/Grand Teton area. Both of these areas had been considered exceptions subject to special consideration even under the April 2000 policy announced by the Park Service. Whether snowmobile access to these parks will be allowed to continue has generated substantial public interest.

Denali National Park. In Alaska, vast distances, lack of roads, abundant snow cover, and small dispersed populations make snow machine use ubiquitous. In general, national parks in Alaska allow snowmobile access under the provisions of the Alaska National Interest Lands Conservation Act (ANILCA, P.L. 96-487). However, access to the 2 million acres formerly known as Mt. McKinley National Park (now the core of Denali National Park) has been an issue. Prior to passage of ANILCA (1980), snowmobiles had been banned from this park. In 1999, the Park Service reinstated this policy, banning snowmobiles first on a temporary and later on a permanent basis.[10] Litigation regarding access to Denali was initiated by snowmobile user groups, but was withdrawn in June 2001, on the assumption that legislation would be introduced to address the issue. Legislation (H.R. 4677 / S. 2589, 107th Congress) was introduced in the spring of 2002 that would have allowed access to some portions of the old Park, while continuing the ban elsewhere. No

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[7] Statement of Donald J. Barry, Assistant Secretary for Fish and Wildlife and Parks, U.S. Department of the Interior, before the House Committee on Resources, Subcommittee on National Parks and Public Lands, and the Senate Committee on Energy and Natural Resources, Subcommittee on National Parks, Historic Preservation, and Recreation, May 25, 2000.

[8] U.S. Department of the Interior, Office of the Assistant Secretary, "National Park Service Puts the Brakes on Escalating Snowmobile Use in the National Park System," Press Release, April 27, 2000, p. 2. In addition to Alaska parks and the three Yellowstone area units discussed below, Voyageurs National Park in Minnesota was also exempted because of the express authorization of snowmobiles in its enabling legislation.

[9] Statement of Denis P. Galvin, Deputy Director, National Park Service, before the Subcommittee on National Parks and Public Lands, House Committee on Resources, Oversight Hearing on General Issues Involving Access to National Parks, July 20, 2000, p. 2.

[10] The temporary closure was instituted on February 3, 1999. The permanent closure was finalized June 19, 2000, at 65 *Federal Register* 37863.

action was taken on these bills, however, and similar legislation has not been introduced in subsequent years.

Yellowstone/Grand Teton. The other exception to the National Park Service's general policy was the Yellowstone/Grand Teton National Park area. The NPS had been sued in May 1997 by groups who alleged that the Service was violating the National Environmental Policy Act, the Endangered Species Act, the National Park Service Organic Act, and the Yellowstone Act in allowing use of snowmobiles in the two parks and on the Rockefeller Memorial Parkway (which links them). The lawsuit was settled within months when the NPS agreed to conduct an Environmental Impact Study (EIS) of winter use of the parks. Upon completion of the study, the Clinton Administration promulgated a final rule in January 2001, banning snowmobiles from Yellowstone, Grand Teton, and the Rockefeller Parkway beginning in the winter of 2003-2004, but allowing continued visitor access through the use of "snowcoaches" — guided tour-vans that run on rubber treads.[11]

Snowmobile manufacturers, represented by the International Snowmobile Manufacturers Association (ISMA), have suggested that "cleaner, quieter" snowmobiles — a phrase not initially defined — be allowed continued access to the parks. Their suggestion found a receptive audience in the Bush Administration. On June 29, 2001, the Administration responded to a suit filed by ISMA and the State of Wyoming by agreeing to reopen the decision to ban the vehicles from the three Yellowstone area units. The Park Service agreed to prepare a Supplemental EIS and reach a new Record of Decision by November 15, 2002 (a deadline subsequently extended to March 15, 2003).

The Record of Decision was signed March 25, 2003, and a final rule implementing it was promulgated December 11, 2003.[12] Despite receiving 104,802 comments on the final proposal, 91% of which "believed the proposed regulation does not adequately protect park resources due to the presence of snowmobiles,"[13] the Park Service reversed the ban in favor of daily limits on entrants, emission standards for the snowmobiles, other access requirements, and an "adaptive management strategy," allowing park managers to take remedial action if monitoring indicates unacceptable impacts from implementation. In explaining its position, the NPS stated: "We are trying to provide a range of appropriate activities in the parks, while protecting park resources and values."[14]

The new rule would have set a daily limit of 950 snowmobile entrance passes for Yellowstone Park, 115 in Grand Teton National Park, and 400 on Rockefeller

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[11] Special Regulations, Areas of the National Park System, 66 *Federal Register* 7260, January 22, 2001.

[12] Special Regulations, Areas of the National Park System, 68 *Federal Register* 69268, December 11, 2003.

[13] Ibid., p. 69269.

[14] Ibid.

Memorial Parkway.[15] On most days, this limit would result in no reduction of snowmobile users; but on weekends and holidays, when as many as 1,700 snowmobiles have entered the three park units, it could limit the number of entrants. Snowmobile users would generally have been required to be accompanied by trained guides (although the regulations would have allowed group members to be as much as 1/3 of a mile from the guide, and the rule preamble conceded, given the noise of a snowmobile, that communication is difficult if not impossible even between passengers on the same machine). To discourage irresponsible behavior, alcohol use by snowmobile users would have been strictly limited.

The machines themselves would be required to achieve a 90% reduction in hydrocarbon emissions and a 70% reduction in carbon monoxide under the Bush Administration rules. Noise emissions would be limited to 73 dB(A), which the NPS estimates is about a 50% reduction compared to conventional snowmobiles. To implement these provisions, the Yellowstone Park Superintendent released a list of 10 snowmobile models approved for use during the 2003-2004 winter season, on September 16, 2003. This list has been updated annually. The most recent version, released on November 1, 2006, contains 25 models.[16]

A hearing on the 2003 rules was held in the U.S. District Court for the District of Columbia on December 15, 2003. The rules were vacated and remanded to the National Park Service by Judge Emmett Sullivan on December 16. The judge held that there was no evidence in the record to support the Bush Administration reversal of the previous agency position and that the decision, therefore, was "arbitrary and capricious." The court also held that the Supplemental EIS accompanying the changes was "flatly inadequate" under NEPA and that the snowmobile decision was "completely politically driven and result oriented."[17] The judge also ordered NPS to respond to Bluewater Network's 1999 rulemaking petition (seeking a ban on snowmobiles in all National Park System units) by February 17, 2004.[18] Judge Sullivan's decision reinstated the Clinton Administration rule and cut the number of snowmobiles entering the three Yellowstone area park units in half for the 2003-2004 winter season in preparation for a complete ban in 2004-5.

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[15] Seventy-five of the passes are for the Continental Divide Snowmobile Trail, which lies in both Grand Teton National Park and the Parkway. These are counted in each unit's total.

[16] [http://www.nps.gov/yell/parkmgmt/current_batlist.htm].

[17] Fund for Animals v. Norton, 2003 U.S. Dist. LEXIS 22557 (D. D.C. December 16, 2003).

[18] NPS denied the petition February 17, 2004, stating that given the differences among parks, "a service-wide directive to prohibit all forms of recreational snowmobile use in the National Park System is no longer warranted and ... with requirements for monitoring and increased use of newer technology snowmobiles, recreational uses can continue to be a part of the NPS winter experience. This will allow decisions to be made on a park-by-park basis, relying on the professional judgment of each park's staff. They will be able to consider the lessons from Yellowstone, such as the use of Best Available Technology requirements, guiding requirements, and adaptive management, as well as overall technological improvements and any other new information, and will then be able to determine whether any review or revision of their special regulations is needed." See "Snowmobile Use in the National Park System," Memorandum from Assistant Secretary for Fish and Wildlife and Parks to the Director, National Park Service, February 17, 2004, pp. 4-5.

Both ISMA and the State of Wyoming appealed the court's ruling. Their request for a stay of the Clinton-era rules pending resolution of their appeal was denied by Judge Sullivan in late December 2003 and by a three-judge panel of the Court of Appeals January 13, 2004. Meanwhile, however, the same groups petitioned the Federal District Court for Wyoming to overturn the Clinton-era rules. That court responded February 10, 2004, when Judge Clarence Brimmer issued a temporary restraining order against the Clinton rules and ordered the National Park Service to develop temporary rules for the remainder of the 2004 winter season. The next day, the Park Service issued such rules, allowing 780 snowmobiles to enter Yellowstone Park each day, an increase of 287 machines. Grand Teton Park and the Rockefeller Parkway were allowed 140 snowmobiles, an increase of 90. An appeal of Judge Brimmer's order was denied by the 10th Circuit Court in Denver on March 10. (The Wyoming court vacated and remanded the Clinton rules on October 14, 2004.)

As a result of the court decisions, snowmobile use in the three parks was substantially reduced during the 2003-2004 winter season. According to NPS, an average of 258 snowmobiles entered Yellowstone in January and February 2004, a reduction of two-thirds from the historic average. In Grand Teton and the Rockefeller Parkway, the reduction was almost total: through February 10, only about 5 snowmobiles a day entered the two parks. After the February 10 court decision, this number increased to about 20.[19]

The NPS subsequently issued Temporary Winter Use Plans for the 2004-2005, 2005-2006, and 2006-2007 winter seasons.[20] The temporary plans, which were intended to guide access policy while additional studies were performed leading to a more permanent solution, allow 720 snowmobiles per day in Yellowstone, all commercially guided, and 140 snowmobiles in Grand Teton National Park and the John D. Rockefeller, Jr., Memorial Parkway. With minor exceptions, all of the snowmobiles are required to meet NPS best available technology (BAT) requirements shown below in Table 1.[21] Snowcoaches are also allowed. NPS concluded that the combination of snowmobiles and snowcoaches "should provide a viable program for winter access to the parks, and ... the opportunity for achieving

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[19] Yellowstone National Park, "Winter Use Plans Environmental Assessment and Proposed Rule," December 6, 2004, p. 2 at [http://www.nps.gov/yell/planvisit/winteruse/].

[20] Department of the Interior, National Park Service, "Special Regulations; Areas of the National Park System; Final Rule," 69 *Federal Register* 65347, November 10, 2004. Hereafter, "November 2004 Regulations." In anticipation of any further developments in either the Wyoming or D.C. court cases, Congress enacted Section 146 of Title I of Division E of the Consolidated Appropriations Act, 2005 (P.L. 108-447, H.R. 4818, H.Rept. 108-792), providing that the Temporary Winter Use Rules described above "shall be in force and effect for the winter use season of 2004-2005." Similar language was approved for the 2005-2006 season in P.L. 109-54, and is contained in the House-passed version of the 2007 appropriation (H.R. 5386, Section 124), which had not been enacted as of this writing.

[21] The exceptions are primarily for snowmobiles accessing other public lands or private property by way of specific road or trail segments. See November 2004 Regulations, p. 65351.

historic visitor use levels."[22] The plans also include the prohibition on alcohol use by snowmobilers that the Park Service had promulgated in its remanded 2003 rule.

Despite the temporary plans' allowable limits, snowmobile visits continued at levels far lower than in the previous decade in the 2004-2005 and 2005-2006 winter seasons. Snowmobiles entering Yellowstone dropped 20% in 2004-2005, compared to the already reduced levels of the previous winter. In 2005-2006, they rose 20% (to a total of 28,833). At that level, average snowmobile use was only about one-third of the permitted number.[23]

The other two area units (Grand Teton National Park and the Rockefeller Memorial Parkway) have seen even steeper declines. Grand Teton fell to 149 snowmobile visitors in the entire winter of 2004-2005, and 268 the following year, compared to its peak of 4,800 in 1999-2000. The Continental Divide Snowmobile Trail hosted only 11 snowmobiles in all of the 2004-2005 winter season, and 17 the following year. The Rockefeller Parkway saw more activity than Grand Teton, but still a marked decrease compared to earlier years: 7,351 snowmobile visitors in 2004-2005, and 10,161 the following year, compared to a peak of 31,011 in 2000-2001.

One result of the declining snowmobile use was a marked increase in visitors using other modes of travel. Snowcoach visitors to Yellowstone increased 70%, to 19,856 in 2005-2006, compared to 11,832 in the peak snowmobile year. In Grand Teton, the number of cross country skiers doubled (to 9,843) compared to the number in the peak snowmobile year.

November 2006 Winter Use Plan. The Park Service also began additional studies to develop a final winter use plan in 2004, and on November 20, 2006, it released the first fruits of its effort. Termed a "Cooperating Agency Review Draft," this latest plan evaluates six alternatives. It presents additional data on the effects of snowmobiles and snowcoaches on air quality, noise, and wildlife, and evaluates the economic impacts on surrounding communities of restricting snowmobile access to the three Yellowstone area NPS units. The draft was released to allow cooperating agencies (EPA, the Forest Service, the states of Wyoming, Montana, and Idaho, and the counties bordering the parks) to make technical comments on the plan before release of a formal draft to the general public early in 2007.

The new draft proposes final rules and access limits similar to those that have been in place during the past three winter seasons: It would allow 720 snowmobiles per day access to Yellowstone, and a combined 140 in Grand Teton National Park and the Rockefeller Memorial Parkway. The snowmobiles would be required to meet best available technology requirements for emissions and noise, and it would require

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[22] November 2004 Regulations, p. 65350.

[23] *Winter Use Plan, Draft Environmental Impact Statement, Yellowstone and Grand Teton National Parks , John D. Rockefeller, Jr. Memorial Parkway*, Cooperating Agency Review Draft, November 2006, p. 129 at [http://mms.nps.gov/yell/pdfs/winteruse/deis/abstract_toc_chapters1-3.pdf].

that snowmobilers be accompanied by commercial guides. It would also authorize entry to 78 snowcoaches per day.[24]

Clean Air Act and Noise Control Act Regulation

In reversing the Clinton Administration rules on Yellowstone access, the National Park Service set limits on emissions and noise from the snowmobiles that would be allowed in the three Yellowstone area park units. Simultaneously, the Environmental Protection Agency developed emission limits applicable to new snowmobiles offered for sale anywhere in the United States beginning in 2006 and 2007. The following sections of this report describe the EPA regulations and look at the broader issue of snowmobile emissions.

The Clean Air Act gives EPA authority to regulate emissions from mobile sources of pollution, including off-road sources such as snowmobiles; but until 2006, snowmobiles (with the exception of those entering the Yellowstone area national parks) were not subject to any federal or state emission regulations. Nor have they ever been subject to noise regulations. EPA has authority under Section 6 of the Noise Control Act of 1972 to regulate noise from "transportation equipment (including recreational vehicles and related equipment)." But the Agency's Office of Noise Abatement and Control was disbanded in 1982, and EPA has not issued any regulations under the statute in the 24 years since then.

Snowmobile Emissions. Snowmobiles generally run on two-stroke engines — the type of engine that traditionally has powered outboard motors and lawnmowers. In a two-stroke engine, fuel enters the combustion chamber at the same time that exhaust gases are expelled from it. As a result, as much as one-third of the fuel passes through the engine without being combusted.[25] This causes poor fuel economy and high levels of emissions, particularly hydrocarbons and carbon monoxide. In one hour, a typical snowmobile emits as much hydrocarbon as a 2001 model automobile emits in 24,300 miles of driving.[26] In a day of use, a snowmobile may emit as much hydrocarbon as an automobile emits in 8-10 years of operation. Snowmobiles also emit as much carbon monoxide in an hour as a 2001 model auto does in 1,520 miles of driving. The impact of these emissions on ambient air quality (as described below) is of at least equal concern as that of hydrocarbons because of the tendency for atmospheric accumulation of CO in winter.

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[24] *Winter Use Plan, Draft Environmental Impact Statement, Yellowstone and Grand Teton National Parks , John D. Rockefeller, Jr. Memorial Parkway*, Cooperating Agency Review Draft, November 2006, at [http://mms.nps.gov/yell/pdfs/winteruse/deis/abstract_toc_chapters1-3.pdf].

[25] In a four-stroke engine (used in automobiles and some newer outboard motors and lawn mowers, but not generally used in snowmobiles) the combustion chamber takes in fuel, compresses it, ignites it, and exhausts it in separate cycles, leading to far more complete combustion and lower emissions, even without the application of emission controls.

[26] U.S. EPA, Office of Air and Radiation, *Draft Regulatory Support Document: Control of Emissions from Unregulated Nonroad Engines*, September 2001, p. I-25, available at [http://www.epa.gov/otaq/regs/nonroad/proposal/cleanrec.htm#rsd].

The hydrocarbons (gasoline) emitted by snowmobiles contain benzene, formaldehyde, and at least three other substances that are known or suspected human carcinogens. Carbon monoxide, on the other hand, is a poisonous gas that, at low levels, can affect those who suffer from cardiovascular disease, such as angina.

In preparing the 2000 Environmental Impact Statement for the decision on snowmobile access to Yellowstone, the National Park Service measured emissions from snowmobiles and compared them to other emission sources in the park. The Service also estimated the concentrations (ambient levels) of carbon monoxide (CO) and particulate matter (PM) present in the air and compared these concentrations to air quality standards. The EIS concluded that the 8-hour maximum concentration of carbon monoxide at the West Yellowstone entrance to the park exceeded the National Ambient Air Quality Standard for CO by nearly 70% (a concentration of 15.15 parts per million vs. the standard of 9).[27] The analysis also concluded that snowmobiles accounted for 97.9% of the CO at West Yellowstone during winter months.

Noise has also been an issue. Opponents of allowing snowmobiles in Yellowstone and other units of the national park system argue that the parks are special places whose remoteness, beauty, and quiet inspire reflection and awe. The noise of engines is incompatible with this atmosphere, they argue. Snowmobile enthusiasts counter that the parks cover vast areas and that snowmobiles are restricted to a few roads — the same roads traversed by cars, recreational vehicles, and buses in summer. They also assert that snowmobile use is compatible with the NPS responsibility to promote visitor use and enjoyment of park resources. Park Service studies indicate that the sound of snowmobiles can be heard for significantly greater distances than that of automobiles, however, and in the late 1990s was essentially continuous during the winter at key locations in Yellowstone: snowmobile noise could be heard 95% of the time by visitors at Old Faithful and 87% of the time at the Grand Canyon of the Yellowstone, according to NPS's December 2000 *Federal Register* notice.[28]

EPA's 2002 Regulations. Regulations for snowmobile and other non-road engine emissions were signed by EPA Administrator Whitman September 13, 2002 and appeared in the *Federal Register* November 8, 2002.[29] As shown in **Table 1**, the regulations require reduction of both carbon monoxide and hydrocarbon emissions from new snowmobiles a little more than 30% starting in 2006 and an average of 50% by 2012, with an intermediate step in 2010. (The regulations did not require any controls on snowmobiles sold before 2006.) For comparison, Table 1

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[27] U.S. Department of the Interior, National Park Service, *Winter Use Plans, Final Environmental Impact Statement for the Yellowstone and Grand Teton National Parks and John D. Rockefeller, Jr., Memorial Parkway,* Volume 1, Chapter 4, p. 224, available at [http://www.planning.nps.gov/document/yellwinterusevol1.pdf]. Ambient air quality standards were not exceeded elsewhere in the park.

[28] National Park Service, Proposed Rule, Special Regulations, Areas of the National Park System, 65 *Federal Register* 79026, December 18, 2000.

[29] U.S.EPA, Control of Emissions from Nonroad Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based), Final Rule, 67 *Federal Register* 68241, available at [http://www.epa.gov/fedrgstr/EPA-AIR/2002/November/Day-08/a23801.htm].

also shows the Yellowstone-specific standards that have been imposed by the National Park Service.

According to EPA, the 2006/2007 reductions can be achieved without major changes in technology, in part because they apply to the average of a manufacturer's fleet emissions, rather than to individual machines. This will allow manufacturers to provide a range of models, some with advanced emission controls and others without: "While some advanced technologies such as two-stroke direct injection and four-stroke engines, would be found in some models, many models would still be equipped with two-stroke engines with relatively minor engine modifications resulting in minimum emission reductions, while some models may not even have any emission controls."[30] EPA estimates the cost of these Phase 1 controls at $73 per snowmobile. Vehicles meeting the standards will be more fuel-efficient, resulting in an average reduction in operating cost of $57, thus offsetting most of the initial cost increase.

The 2010 and 2012 standards, which also are fleet averages, can also be met without eliminating two-stroke engines, according to the Agency. Because two-stroke engines produce more power than similar size four-strokes and are easy to start in cold weather, the Agency expects the industry to continue to manufacture mostly two-stroke engines even in 2012, although many would be modified with direct injection technology to reduce emissions. According to the Agency, "A potential scenario for meeting these standards could be a mixture of 50 percent direct injection, 20 percent four-stroke engines, and 30 percent with engine modifications."[31] The cost of these changes would average an additional $131 per snowmobile in 2010, according to EPA, but the costs would be offset by $286 in fuel savings and improved performance, so that lifetime costs would actually be $155 lower. The same is true of the 2012 standards: the added cost of $89 per snowmobile is offset by $191 in fuel savings and improved performance, according to EPA, for a net savings of $102 per vehicle.[32]

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[30] Notice of Proposed Rulemaking: Control of Emissions from Nonroad Large Spark Ignition Engines and Recreational Engines (Marine and Land-based), Preamble, 66 *Federal Register* 51154, October 5, 2001. Further discussion, including the cost estimates, is found on pp. 51169-51170. The preamble to the final standards says that one scenario for meeting the 2006/2007 standards would be 15% four-stroke engines, 15% direct injection two-strokes, 60% conventional two-strokes with improved carburetion, enleanment strategies, and engine modifications; presumably, the other 10% would have no modifications at all. Control of Emissions from Nonroad Large Spark-ignition Engines, and Recreational Engines (Marine and Land-based), Final Rule, as signed September 13, 2002, Preamble, p. 93, available at [http://www.epa.gov/otaq/regs/nonroad/2002/preamble.pdf].

[31] Preamble to the Final Rule, ibid., p. 94.

[32] Ibid., Table IX.B-1, p. 179.

Table 1. EPA and NPS Snowmobile Emission Limits

Year	Carbon Monoxide (CO)	% Reduction	Hydrocarbons (HC)	% Reduction
current average	397 g/kW-hr		150 g/kW-hr	
2006/2007*	275 g/kW-hr	30.7%	100 g/kW-hr	33.3%
2010	275 g/kW-hr	30.7%	75 g/kW-hr	50%
2012**	200 g/kW-hr*	49.6%	75 g/kW-hr*	50%
Yellowstone/ 2003 (NPS)	120 g/kW-hr	70%	15 g/kW-hr	90%

g/kW-hr = grams per kilowatt-hour.

* Half of snowmobiles sold in 2006 must comply with the EPA standards. With a few exceptions, all snowmobiles sold in 2007 must comply.

** EPA's 2012 standards allow manufacturers to trade additional reductions in HC for increases in CO emissions, provided that CO emissions are reduced at least 30%, HC emissions are reduced at least 50%, and the total of HC+CO emissions sums to 100%. Thus, for example, HC reductions of 60% and CO reductions of 40% would satisfy the requirement, as would HC reductions of 70% and CO reductions of 30%.

The costs of each of the three phases are incremental. Thus, when fully implemented, the standards would cost an additional $293 per snowmobile, according to the Agency; lifetime operating costs, however, would decline by $534. Combining these two factors, the standards would decrease total costs by $241 per snowmobile when fully implemented.

As compared to the standards EPA proposed in 2001, the final standards were weakened or made more flexible in three respects, and strengthened in two other respects. First, the 2006 standards have been phased in, with only 50% of 2006 model snowmobiles required to meet the standard, and full compliance delayed until the 2007 model year. Second, the 2010 standard for carbon monoxide remains at the 2006 level of 275 grams per kilowatt-hour; in EPA's original proposal, it would have been reduced to 200. Third, in 2012, manufacturers will have to meet the standards originally proposed for 2010, but, within limits, they will be allowed to trade reductions in CO for additional reductions in hydrocarbons. Thus, reductions of CO may not reach the 50% level originally proposed; if they don't, however, the extra CO emissions would be offset by additional reductions in hydrocarbons.

The standards were strengthened in two respects. First, EPA added a permeation emission standard for fuel tanks and hoses. Fuel evaporates through hoses and through the walls of plastic containers (such as those used as fuel tanks on snowmobiles). The tank and hose standards require an 85% reduction in plastic fuel tank permeation emissions and a 95% reduction in fuel system hose permeation beginning in 2008, in order to lower hydrocarbon emissions from evaporation. The cost of this standard is estimated at $7 per vehicle, with cost savings of $11.[33] The second, relatively minor, strengthening was the addition of a cap on emissions of

[33] Ibid.

nitrogen oxides (NOx) in 2012. The NOx cap was set at approximately the current level of emissions. It was added because some of the technologies that might be used to lower HC and CO could simultaneously increase NOx. To prevent that, the Agency added a cap at current levels.[34]

The standards do not include noise limits. While acknowledging that the Agency has the authority to set noise standards, the proposal stated that "at this time we do not have funding to pursue noise standards for nonroad equipment that does not have an existing noise requirement."[35] An Agency source confirmed that the proposed standards would have essentially no impact on noise.[36] Despite receiving comments from a number of organizations that the standards should address noise, the Agency restated in its response to public comments that it would not address the issue, adding that Congress would need to provide appropriations for the Agency to begin any noise control initiative.[37]

As noted, the National Park Service promulgated noise standards applicable to snowmobiles entering its three Yellowstone area park units beginning December 17, 2003, under the winter use rule that was vacated; it restated these standards in its Temporary Winter Use Plan that took effect in 2004.[38] According to Park Service estimates, these standards would require a reduction of about 50% in noise emitted by the affected snowmobiles, compared to conventional uncontrolled snowmobiles.

Reaction to the EPA Standards. Both the snowmobile industry and environmentalists have challenged EPA's standards in court. On June 1, 2004, the U.S. Court of Appeals for the D.C. Circuit vacated the standard for nitrogen oxides and remanded the 2012 standards for hydrocarbons and carbon monoxide. The court directed EPA "to clarify (1) the statutory and evidentiary basis of the Agency's assumption that the standards must be sufficiently lenient to permit the continued production of all existing snowmobile models, and (2) the analysis and evidence underlying the Agency's conclusion that advanced technologies can be applied to no more than 70% of new snowmobiles by 2012."[39] EPA has not yet responded to the remand, and does not expect to do so until 2009.[40]

The International Snowmobile Manufacturers Association (ISMA) has argued that EPA grossly underestimated the costs of compliance, and that the standards will

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[34] Ibid., p. 73.

[35] Ibid., p. 135.

[36] Personal communication, John Mueller, U.S. EPA Office of Transportation and Air Quality, September 28, 2001.

[37] U.S. EPA, Office of Air and Radiation, *Summary and Analysis of Comments: Control of Emissions from Unregulated Nonroad Engines*, September 2002, p.II-78, available at [http://www.epa.gov/otaq/regs/nonroad/2002/r02023.pdf].

[38] 36 CFR 7.13(a)(6)(C)(ii), November 2004 Regulations, p. 65361.

[39] Bluewater Network v. EPA, D.D.C., No. 03-1003, June 1, 2004, p. 4.

[40] Personal communication, EPA Office of Transportation and Air Quality, November 22, 2006.

lead to the elimination of entry-level snowmobiles from the market. Cleaner, quieter machines can be made, according to ISMA, but they cost more, are heavier, and can only be ridden on groomed roads. ISMA has estimated that the cleanest four-stroke engines cost an additional $1,700 (about 30% more than average prices). Even modest improvements to two-stroke engines will cost $350-$400 per machine, according to the Association.[41]

Bluewater Network, on the other hand — the environmental group most identified with snowmobile issues — feels the rules should be much stronger.[42] In comments submitted to EPA, Bluewater encouraged the Agency to set standards "that can only be met using the best available technology, which we believe to be four-stroke engines with particle traps and three-way catalysts."[43] They also want mandatory emission labels for the machines, and are disappointed that the Agency chose not to set noise standards.

Bluewater has pointed to the Clean Snowmobile Challenge, an annual design contest open to college engineering students and sponsored by the Society of Automotive Engineers, as demonstrating that machines far cleaner than EPA's standards are feasible. The winning entry in the 2001 Challenge reduced CO 78.8% and unburned hydrocarbons 97.6% and significantly reduced noise, at a cost of $600.[44] In the 2006 contest, the winning entry reduced CO emissions 83% and unburned hydrocarbons more than 99% at a cost of $314.[45] "If college students are able to build cleaner and quieter machines, surely the billion-dollar snowmobile industry can do as well," said Bluewater Public Land Director Sean Smith.[46]

Both Bluewater and the snowmobile manufacturers argue that EPA has misinterpreted the legal authority on which the new standards rely. Bluewater (as well as other environmental groups and the National Association of Clean Air Agencies (formerly STAPPA), the association representing state air pollution program administrators, argue that EPA has promulgated standards that are less stringent than the law requires. Section 213(a)(3) of the Clean Air Act requires the Agency to promulgate standards that "achieve the greatest degree of emission

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[41] Personal communication, Ed Klim, President, ISMA, September 27, 2001.

[42] Personal communication, Sean Smith, Bluewater Network, September 27, 2001. Also see "Bush Administration Fails to Protect Public Health, Folds to Industry Interests," Press Release, September 13, 2002, available at [http://www.bluewaternetwork.org/press_releases/pr2002sep13_pl_eparule.pdf].

[43] Bluewater Network, "Comments on the Environmental Protection Agency's Advanced Notice of Proposed Rulemaking, Docket A-2000-01," p. 2.

[44] See " 'Clean' Snowmobile Produces Lower Emissions than the Average Car at SAE Clean Snowmobile Challenge 2001," Press Release, April 10, 2001.

[45] The 2006 Clean Snowmobile Challenge results can be found at [http://www.mtukrc.org/snowmobile.htm], with emissions data at [http://www.mtukrc.org/download/score_sheet_sae_fuel_csc2006.xls]. To derive the percentage reductions, we compared the emissions of CO and unburned hydrocarbons to the "uncontrolled average" data in this report's Table 1.

[46] Personal communication, Sean Smith, Bluewater Network, September 27, 2001.

reduction achievable ... giving appropriate consideration to the cost ... and to noise, energy, and safety factors...." Four-stroke engine technology, achieving greater emission reductions than the Agency promulgated, is already available, they note — machines using this technology are on the market. Cost, noise, and energy factors cannot be used as arguments against adoption of this technology: the lifetime cost of such engines would be lower than that of current engines, according to the Agency's own analysis; the technology uses far less energy, and could be substantially quieter than current engines. Thus, according to these groups, the Agency's standards do not meet the requirements of the act.

Snowmobile and other nonroad-vehicle manufacturers, on the other hand, focus on Section 213(a)(2) of the act, which ties the Agency's authority to regulate nonroad engines to a finding by the Administrator that emissions from such engines or vehicles "are significant contributors to ozone or carbon monoxide concentrations in more than 1 area which has failed to attain the national ambient air quality standards for ozone or carbon monoxide." EPA addressed this issue before beginning the process of developing regulations: on June 17, 1994, the Agency made an affirmative determination that emissions from nonroad engines and vehicles are significant contributors to ozone, CO, and particulate matter in more than one nonattainment area.[47] On December 7, 2000, the Agency issued a finding that recreational vehicles (including snowmobiles) are among the specific categories of nonroad vehicles that contribute to such pollution.[48] In its October 5, 2001 *Federal Register* notice, which proposed the snowmobile standards, the Agency identified 7 areas in Alaska, Washington, Colorado, Oregon, and Montana that have significant populations of snowmobiles and have failed to attain the air quality standard for CO.[49]

Manufacturers of snowmobiles and other nonroad vehicles note, however, that carbon monoxide concentrations have declined [chiefly as a result of auto emission standards] and that none of the 7 areas identified by the Agency has exceeded the CO standard in recent years, even if they were still formally classified as nonattainment at the time of the proposal.[50] CO nonattainment today is essentially a problem in urban "hot spots," according to manufacturers, and snowmobiles make no contribution to that problem.[51]

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[47] 59 *Federal Register* 31306, June 17, 1994.

[48] 65 *Federal Register* 76790, December 7, 2000.

[49] 66 *Federal Register* 51105-51107, October 5, 2001. The Preamble to the final rule revised the list of 7 areas, identifying 6 nonattainment areas in which the Agency believes snowmobiles are significant contributors to CO concentrations; the Agency added that there are 6 additional areas that have not been classified nonattainment, but where air quality monitoring indicates a need for CO control. See Preamble to the Final Rule, previously cited, p. 18.

[50] Only one of the seven, Missoula, MT, was still classified nonattainment in 2006.

[51] Statement of Ed Klim, President, ISMA, at EPA Public Hearing, Washington, D.C., October 24, 2001.

Legislative Issues

Members of Congress, both from western and other states, have expressed an interest in whether there will be continued snowmobile access to national parks. At least five hearings have been held on these issues since the 106th Congress,[52] and Congress has twice approved language in appropriations bills to require that NPS Temporary Winter Use Rules permitting snowmobiles in Yellowstone and Grand Teton National Parks and on the Rockefeller Memorial Parkway remain in effect for the year covered by the appropriations bill.[53] Both the House-passed and Senate Appropriations Committee-reported appropriations bills for 2007 (H.R. 5386) contain language to continue the Temporary Winter Use Rules at the Yellowstone area parks.

In the 108th Congress, Representative Holt twice attempted to amend Interior Department Appropriation bills to prohibit spending to manage recreational snowmobile use in the three Yellowstone area park units except in accordance with the Clinton Administration rule phasing out snowmobiles. The first such amendment (H.Amdt. 266 to H.R. 2691) was defeated on a tie vote, 210-210, July 17, 2003. The second attempt (H.Amdt. 563 to H.R. 4568) was defeated on June 17, 2004, by a vote of 224-198.

Other legislation to prohibit snowmobile access to national parks and to grant continued access was introduced, but not acted on, in the 107th and 108th Congresses.

Conclusions

Despite actions by Congress, EPA, the National Park Service, and the courts, snowmobile issues remain far from resolved. Congress and the NPS have provided a temporary resolution of the Yellowstone access issue, but the issue is now returning, as NPS proposes final regulations for Yellowstone access for a third time. EPA and the National Park Service have been charged by the courts with revising emission standards and developing snowmobile access requirements, respectively. Their actions will provide further opportunities for public and congressional involvement. The courts will also continue to be involved in these issues, with the continuing legal proceedings over Yellowstone access, as well as the suits filed regarding emission standards for snowmobiles.

Public interest in snowmobile issues remains significant: the reopening of the Yellowstone area Winter Use Plan in early 2003, for example, generated 350,000 public comments. Thus, Congress can be expected to retain an interest in the resolution of these issues.

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[52] The most recent hearing was before the House Resources Committee's Subcommittee on National Parks, *Oversight Hearing on Snowmobile Use in the National Park System*, April 12, 2005.

[53] See Section 146 of Title I of Division E of the Consolidated Appropriations Act, 2005 (P.L. 108-447, H.Rept. 108-792) and Section 126 of Department of the Interior, Environment, and Related Agencies Appropriations Act, 2006 (P.L. 109-54).