Monthly Review: April 2011

This monthly review goes out to the leadership of AGI's member societies, members of the AGI Government Affairs Advisory Committee, and other interested geoscientists as part of a continuing effort to improve communications between GAP and the geoscience community. The current monthly review and archived monthly reviews are all available online. Subscribe to receive the Government Affairs Monthly Review by email.

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1. Call for Geoscientists to Attend GEO-CVD in September

The American Geological Institute (AGI), in collaboration with many other geoscience societies, invites geoscientists to come to Washington, DC for the annual Geosciences Congressional Visits Day (GEO-CVD) on **September 20-21, 2011**. Decision makers need to hear from geoscientists. Become a citizen geoscientist and join many of your colleagues for this two-day event uniting geoscience researchers, professionals, students, educators, engineers, and executives in Washington, DC to raise visibility and support for the geosciences.

A constructive visit from citizen geoscientists about the importance and value of geoscience (and geoscience-related engineering) research and education is the most effective way to inform and impact federal science policy.

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2. President Signs Policy Directive on Preparedness

On March 30, 2011, President Obama signed a Presidential Policy Directive on Preparedness (PPD-8) that calls for strengthening the security and resiliency of the United States through systematic preparedness for risks. The Department of Homeland Security is tasked with providing a national preparedness goal document within 180 days of the directive.

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3. Federal Agencies' Greenhouse Gas Emissions Data Released

White House Council on Environmental Quality (CEQ) Chairwoman Nancy Sutley announced in April the latest assessments of greenhouse gas (GHG) pollution by the federal government. In all, the federal government was responsible for 66.4 million metric tons of carbon dioxide emissions last year, about 2.5 million metric tons fewer than in 2008. While the Office of Management and Budget has kept track of these numbers for years, this is the first year these metrics have been made public. The Department of Defense tops the list as the largest emitter of greenhouse gas emissions of any government entity.

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4. Congress Passes Budget for Fiscal Year 2011

After many months of contentious debates and seven continuing resolutions, Congress passed a budget for fiscal year 2011 with about six months left in the year (H.R. 1473). The President signed the legislation into law (Public Law 112-10). The budget will cut about $61 billion from the overall federal budget. Among the science agencies, there are significant cuts to their overall budgets and targeted cuts for work related to climate change. An AGU Policy Alert summarizes the cuts in tabular form for geoscience-related agencies. The overall cuts include National Science Foundation (-$66 million), U.S. Geological Survey (-$26 million), National Aeronautics and Space Administration (-$224 million), National Oceanic and Atmospheric Administration (-$253 million), Energy Department’s Office of Science (-$20 million) and the Environmental Protection Agency (-$1.5 billion). The agencies are still working out specific cuts to specific programs, so some details are not known.

Some of the known impacts include a reduction in research grants from the NSF, delays or terminations of satellite missions with concomitant data loss or data gaps at NASA and NOAA, and reductions in research programs within the Department of Energy and the U.S. Geological Survey.

The American Association for the Advancement of Science (AAAS) R&D Budget and Policy Program has a summary of the FY2011 research budgets within all federal agencies.

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5. Consideration of Fiscal Year 2012 Budget Begins

Vice President Joseph Biden began meeting with key members of Congress on May 5 to try to work out some compromises on the fiscal year (FY) 2012 budget. Besides significant disagreements between the Democrats and Republicans on budget priorities, Biden is also working to avoid acrimony over the necessity to raise the U.S. debt limit in August. Raising the debt limit is a difficult vote for all members and it will be more difficult with the ongoing budget battles.

The FY2012 budget discussions start with President Obama’s budget request from February, 2011. The President’s budget overview includes $1 trillion in deficit reductions in the FY 2012 budget request and a five-year freeze on non-security

discretionary spending to reduce the deficit by $400 billion over ten years. The overview lists five keys - Innovate, Educate, Build, Responsibility and Reform – of the request. The AGI Government Affairs FY 2012 Appropriations Overview has details on the specific geosciences funding requests plus links to the relevant agency budget offices for more details. The American Association for the Advancement of Science (AAAS) R&D Budget and Policy Program has a summary of the FY2012 research budgets requests within all federal agencies and provides a broader overview of U.S. research and development budgets.

The House Budget Committee Majority, led by Chairman Paul Ryan (R-WI), released a Path to Prosperity document about the FY 2012 budget and beyond. The document offers direction on taxes and large mandatory spending items such as Medicaid and Medicare in order to reduce the deficit over time. The plan is similar in scope to the President's National Commission on Fiscal Responsibility that released a report in December 2010 called The Moment of Truth that offers direction on taxes, mandatory spending and discretionary spending to reduce the deficit over time. The documents have significant differences and both have been criticized, nonetheless they represent a starting point for discussion and compromise for FY2012 and the future.

Both plans call for a freeze on discretionary spending and then reducing discretionary spending to pre-2008 levels. Such a path would lead to a cut of more than $2 billion for the National Science Foundation and devastating cuts to other science agencies. Not only would such plans curtail research and education, but large projects such as monitoring networks, research vessels and satellites would be cut, terminated or not initiated to save costs.

Among other deficit-reducing strategies, the president's commission calls for a disaster fund to "budget honestly for catastrophes" and a 15-cent gas tax to support a transportation fund to pay for transportation infrastructure needs. The geosciences would be involved in prescriptions for such funds.

On April 15, the House passed a budget resolution (H. Con. Res. 34) that establishes a budget blueprint for FY2012 and budgetary levels for 2013-2021. The House will follow these guidelines in its budget deliberations. The Senate has not considered the House resolution and has not brought forth their own resolution, so there is no publicly available guidance on Senate budget deliberations. Look for Vice President Biden to work with a small group of legislators behind the scenes to work out some compromises before Congress has to vote on raising the debt ceiling in August.

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6. Congress Votes on EPA Regulations

In early April, the Senate and the House voted on language that would stop the Environmental Protection Agency (EPA) from regulating greenhouse gas emissions. In the Senate, four different amendments to limit EPA's authority were offered to a small business bill (S. 493) but were all defeated. The four amendments, offered by Senators James Inhofe (R-OK), Jay Rockefeller (D-WV), Max Baucus (D-MT), and Debbie Stabenow (D-MI), varied in the limitations placed on EPA. The Inhofe amendment, which would have stripped EPA of its ability to regulate heat-trapping emissions from stationary sources, garnered fifty votes while the other three amendments received fewer than 13 votes each. Every Republican senator (except for Senator Susan Collins of Maine) plus four moderate and conservative Democrats voted for the Inhofe amendment.

The next day, on April 8, the House voted on an identical measure to the Inhofe amendment, the Energy Tax Prevention Act of 2011 (H.R. 910). After defeating 9 different Democratic amendments, the vote passed 255-172 with nineteen Democrats joining the Republicans.

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7. Hazards Legislation Moves in Congress

Representative David Wu (D-OR) has reintroduced the Natural Hazards Risk Reduction Act (H.R. 1379) that would reauthorize the National Earthquake Hazards Reduction Program (NEHRP) through fiscal year 2015, support the National Windstorm Risk Reduction Program and establish an interagency hazards committee. NEHRP is a long-standing cooperative program involving the National Science Foundation, the U.S. Geological Survey, the National Institute of Standards and Technology and the Federal Emergency Management Agency to understand earthquakes, monitor and analyze earthquakes and prepare and mitigate earthquake risks. The bill is identical to S. 646 introduced by California Senators Barbara Boxer and Dianne Feinstein last month.

On April 7, the Subcommittee on Technology and Innovation, of which Wu is Ranking Member, held a hearing to review efforts supporting the development of earthquake hazard reduction measures. Director of NEHRP, Dr. Jack Hayes told the committee, "our challenge is to see that the new knowledge and experience gained through NEHRP continues to be developed and applied to domestic practices and policies that foster a more resilient American society." Hayes testified alongside Jim Mullen, President of the National Emergency Management Association; Chris Poland, Chairman of the NEHRP Advisory Committee; and Vicki McConnell, Oregon State Geologist.

The Senate Commerce, Science and Transportation Committee held a hearing on disaster preparedness on May 3, which focused on the recent damaging tornadoes in Alabama and elsewhere with some coverage of earthquake hazards related to nuclear power plants in California. On May 5, the committee marked up and approved the Natural Hazards Risk Reduction Act (S.646). The

Hurricane Research Initiative (S.692) was also considered and approved in the form of an amendment.

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8. Senate Energy Committee Considers Isotope and Hydropower Bills

The American Medical Isotope Production Act of 2011 (S. 99), introduced by Senators Jeff Bingaman (D-NM) and Lisa Murkowski (R-AK), was marked-up and passed by the Energy and Natural Resources Committee in April. The measure supports research to increase domestic production of the isotope, molybdenum 99 (Mo-99) while using decreasing amounts of highly-enriched uranium (HEU). Traditionally, Mo-99 is produced by concentrated neutron-bombardment of HEU. Processes based on HEU pose a threat to national security because the materials can be used in nuclear weapons. Mo-99 is preferred for medical purposes because it decays to technetium-99, which is used to detect cancer, heart disease and thyroid disease, to study brain and kidney function and to image stress fractures. A summary of the hearing in February on this issue can be found here.

Two hydropower measures and a new bill that covers energy and water portions (subtitle D) of the American Clean Energy Leadership Act of 2009 (S. 1462) were also marked up in April. Though Murkowski was initially optimistic all three bills would pass on a bipartisan vote, only the Hydropower Improvement Act of 2011 (S. 629) was approved by the committee in the markup. The Marine and Hydrokinetic Renewable Energy Promotion Act of 2011 (S. 630) and the Energy and Water Integration Act of 2011 will receive further consideration later. The Energy and Water Integration Act would initiate studies on the lifecycle of water used in energy production, the energy use in the procurement, delivery, and treatment of water, and would fund desalination research.

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9. Rare Earth Bills Introduced in March and April

Four different rare earth bills were introduced in late March and April, while a draft of a fifth bill was made available for public comment. Representative Hank Johnson's (D-GA) RARE Act of 2011 (H.R. 1314) would direct the Secretary of the Interior, through the U.S. Geological Survey (USGS), to submit a comprehensive report on global rare earth element resources and potential future global supplies of such resources. The report would have to include recommendations on areas needing geological research related to rare earth elements and other critical materials. Johnson's bill has been cosponsored by Representatives Ed Markey (D-MA), John Garamendi (D-CA), Daniel Lipinski (D-IL), and others.

Sponsored by Mike Coffman and other western and mid-western Republicans, the RESTART Act of 2011 (H.R. 1388) would create a task force of representatives from government agencies to find ways of accelerating the completion of projects to increase investment in, exploration for, and development of rare earth elements. Whereas Johnson's RARE Act would require the USGS to only report on global resources and recommend future research opportunities, the RESTART Act would establish a research and development rare earths materials program at the USGS to explore, discover, and recover rare earth materials; improve methods of extraction; identify and test substitute materials; and to collect, catalog, and disseminate information on rare earths. Furthermore, it is the only bill introduced in April that would require a federal stockpile of specific materials and alloys.

Representative Brad Miller's (D-NC) Energy Critical Elements Renewal Act of 2011 (H.R. 952) has been referred to the Subcommittee on Energy and Environment of the, House Science, Space and Technology Committee, where Miller is Ranking Member. It is similar to Representative Leonard Boswell's (D-IA) legislation, the Rare Earths and Critical Materials Revitalization Act of 2011 (H.R. 618). The two bills would each establish a program at the Department of Energy to fund research and development of rare earths. Miller's bill would include other "energy critical elements" that are not rare earths, such as cobalt, lithium, gallium, and indium. Both bills would provide for temporary loan guarantees under the Energy Policy Act of 2005.

Senator Lisa Murkowski (R-AK) is soliciting public input on a discussion draft of legislation to revitalize the nation's critical materials supply chain. Her bill has sections on rare earth elements, helium gas, thorium and potash. The draft and instructions on how to submit comments can be found on the senator's website. Comments are due by May 6.

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10. Uranium Mining Bill Introduced

Representatives Ben Ray Lujan (D-NM) and Martin Heinrich (D-NM) introduced the Uranium Resources Stewardship Act (H.R. 1452) to manage uranium mining on federal lands through a competitive leasing program and to impose a 12.5 percent royalty on uranium. Under current law, the General Mining Act of 1872, companies do not pay royalties for minerals taken from public lands. Advocates for the bill say companies are not paying for cleanup and reclamation costs. Mining companies are opposed to any new measure that requires added fees. Senator Jeff Bingaman (D-NM) introduced similar legislation in 2009, but the bill did not advance in the Senate.

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11. House Committee Launches Yucca Mountain Investigation

The Environment and the Economy Subcommittee of the House Energy and Commerce Committee sent a letter to Secretary

Steven Chu of the Department of Energy and a letter to Chairman Gregory Jaczko of the Nuclear Regulatory Commission (NRC) about an investigation of the reasons for terminating the Yucca Mountain high-level nuclear waste repository. The letters seek information that led to the decision to withdraw the licensing application that was pending before the NRC. The letters, signed by Chairman Fred Upton of the full committee and Chairman John Shimkus of the subcommittee, informed the two federal officials that their actions are being evaluated with respect to their responsibilities and obligations under the Nuclear Waste Policy Act of 1982 (42 USC 10101).

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12. Nuclear Waste Considerations in the Aftermath of the Tohoku Quake

The House Energy and Commerce Committee will hold hearings about whether to terminate the Yucca Mountain nuclear waste repository in early May and many representatives continue to question the future of the repository. President Obama has requested the termination of Yucca Mountain through the budget requests of fiscal years 2010, 2011 and 2012, but Congress would need to amend current law to do so. The Department of Energy (DOE) is trying to revoke the Yucca Mountain license application from the Nuclear Regulatory Commission (NRC) but the NRC has not yet reached a decision. The future of Yucca Mountain has gained renewed interest because of the March 11 Tohoku earthquake and tsunami in Japan that triggered explosions, leaks, evacuations and continued problems at the Fukushima Daiichi nuclear power plant.

The NRC has been in an “emergency” status since the Tohoku earthquake and has been reviewing safety at U.S. nuclear power plants. The status allows NRC Chairman Gregory Jaczko to transfer some commission decision-making powers to himself and Jaczko has maintained those rights since the earthquake. Congress passed a law in 1980 authorizing the transfer of decision-making powers, however, now Senator James Inhofe (R-OK) is questioning why the NRC is still in an emergency status so long after the event and potentially not accessing the advice of the commission.

There have also been questions over how Jaczko determined a 50-mile evacuation zone in the early days of the disaster. This was done without the advice of the commission. Part of the Fukushima damage is related to spent fuel pools at the site and the NRC thought there was more spent fuel then there was, so they proposed a 50-mile evacuation zone. Even though the zone is larger than the evacuation zones announced by the Japanese, the Japanese zones continue to grow and the plant continues to suffer from instability and problems.

The U.S. has many spent fuel pools at over 100 power plants that are now of heightened concern after the events in Japan. The U.S. spent fuel was supposed to be moved to a waste repository years ago and Yucca Mountain was supposed to be the central site. Delays and controversy have kept Yucca Mountain from being completed and now the stalemate on Yucca leaves the U.S. without any solution for the growing number of spent fuel ponds at U.S. plants. On May 2, the NRC approved of a large expansion of spent fuel storage at the Beaver Valley Unit 2 in Shippingport, PA after a three year study.

While the federal government favors incentives for nuclear power development, extension of current nuclear plants, nuclear energy research, and enhanced nuclear non-proliferation, local governments as well as foreign governments are reconsidering nuclear energy. The Vermont state government and its utility board are against the continuation of operations by the Yankee Nuclear power plant in Vermont, even though the NRC granted Yankee a 20-year extension. Germany and India are reconsidering further development in nuclear energy within their borders.

Internationally, the 25-year anniversary of the Chernobyl nuclear disaster in April 26, 2011, set forth calls for improved international safety standards for nuclear power plants. United Nations chief Ban Ki-moon called for the International Atomic Energy Agency (IAEA) to be more involved in developing new nuclear safety standards and President Medvedev of Russia called for international standards.

As temporary spent nuclear fuel storage in the U.S. continues to grow and with disasters such as Chernobyl and Fukushima reminding the world of the dangers of nuclear power, the U.S. policy on expansion and oversight of nuclear power and long-term waste storage remains mired in controversy and uncertainty. Some members of Congress have been vocal about their concerns about nuclear energy and nuclear waste, but little legislation has been introduced as legislators consider next steps.

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13. Three House Bills to Expedite Offshore Oil and Gas Leasing

A trio of bills was introduced in April that would speed up offshore lease sales for oil and gas production. The bills, the Putting the Gulf of Mexico Back to Work Act (H.R. 1229), the Restarting American Offshore Leasing Now Act (H.R. 1230) and the Reversing President Obama’s Offshore Moratorium Act (H.R. 1231), were passed by the House Natural Resources Committee. Together, the bills would give the Department of the Interior (DOI) 30 days to act on drilling proposals in the Gulf and would require DOI to offer future leases in areas with at least 2.5 billion barrels of oil or 7.5 trillion cubic feet of natural gas according to a 2006 Minerals Management Service assessment. DOI would be required to hold four lease sales over the next year at a site off the coast of Virginia and three more sales in the Gulf that were originally postponed after the BP oil spill last year. The Reversing

President Obama's Offshore Moratorium Act will head to the floor for consideration while the Putting the Gulf of Mexico Back to Work Act has been referred to the House Judiciary Committee. The Restarting American Offshore Leasing Now Act passed the House on May 5. /p>

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14. Democratic Representatives Seek Offshore Royalty Reform

Led by Representative Ed Markey (D-MA), a group of Democratic lawmakers have introduced legislation that would reform a decade-old royalty-waiver program for oil companies with federal leases drilling in deepwater conditions. The waivers, approved of in 1995, were originally meant to support oil companies still developing deepwater capabilities and allowed companies to reduce or eliminate their royalties until they had recouped their investments. Democrats have been trying to remove this waiver for many years and they argue the removal of the waiver can help reduce the federal deficit. According to Markey, the "Deficit Reduction through Fair Oil Royalties Act" (H.R. 1352) would "[end] this ridiculous loophole that robs the taxpayers of more than a billion dollars a year."

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15. Limited Legislation on Anniversary of BP Oil Spill

The one-year anniversary of the BP Deepwater Horizon explosion and oil spill passed on April 20 with many reviews of what happened, what has been learned and what has been done to prevent a similar catastrophe in the future.

The Obama Administration established investigation panels and a presidential commission to investigate the oil spill. The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling recommended that Congress provide annual mandatory funding for oil spill response research and noted the funding for additional research and safety enforcement could come from portions of fees that companies pay for federal leases and from new regulatory fees. The joint DHS-DOI investigation of what happened and who is responsible has not been completed nor has the Department of Justice investigation of the responsible parties. The NOAA-led Natural Resource Damage Assessment as required by the Oil Spill Pollution Act of 1990 is underway.

The Department of the Interior completely re-organized the Minerals Management Service (MMS) that was responsible for oversight of offshore oil and gas production. The MMS is now the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) and responsibilities for leasing, oversight and safety have been further subdivided into separate divisions within BOEMRE.

Congress held many hearings and introduced many bills related to the oil spill, however, no major bills passed in the 111th Congress. Some measures have been re-introduced at the beginning of the 112th Congress, including *Implementing the Recommendations of the BP Oil Spill Commission Act of 2011* (H.R. 501), which increases the liability, adds fees to industry and includes many of the presidential commission's recommendations. This House bill sponsored by Edward Markey (D-MA) is unlikely to move forward with the new House majority that generally favors offshore oil and gas production with limited regulation. As summarized above, the Chair of the House Natural Resources Committee, Doc Hastings (R-WA), sponsored three bills to spur offshore oil and gas production while Markey is considering another draft measure to remove royalty waivers for deepwater drilling.

The Senate Energy and Natural Resources Committee is expected to bring forward measures similar to previous efforts with the addition of some of the recommendations from the presidential commission, however, no legislation has been introduced yet.

While formal government investigations have not been completed, the U.S. government has listed BP as a responsible party. BP agreed to set-up a $20 billion oil spill response fund (BP placed about $5 billion into the fund in 2010 and promises $1.25 billion per quarter thereafter) to be used to compensate victims of the oil spill. The fund's operations and disbursements, led by Kenneth Feinberg, have been criticized by legislators, including Senator David Vitter (R-LA) and many others.

On May 24, 2010, BP agreed to set-up a $500 million research fund ($50 million a year for 10 years) to help researchers study the impact of the oil spill on the environment and to improve understanding for response to future spills. About $50 million was distributed in June 2010 and then the fund became mired in controversy. The Gulf of Mexico Research Initiative (GRI), led by marine scientist Michael Carron was organized to handle the remaining $450 million and on April 25, 2011 the Research Board Chair Rita Colwell announced the first research funding proposal opportunity for about $37.5 million for three to four year research grants. Colwell an environmental microbiologist at the University of Maryland and former director of the National Science Foundation (NSF) says the proposals will be considered using the same peer-review process as the NSF.

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16. Coast Guard Releases BP Oil Spill Response Recommendations

The Coast Guard's internal Incident Specific Preparedness Review (ISPR) of the agency's response to the BP Oil Spill is now available to the public. The report found the agency was unprepared for the devastating spill and issued recommendations to improve response plans, mitigation strategies, and coordination among government entities. Compiled by representatives from the

Coast Guard, other federal and state agencies, and advisors from industry and non-governmental organizations, the report shows that funding for the Coast Guard's marine environmental programs has declined over the past decade due to increased competition with new homeland security responsibilities since the September 11, 2001 terrorist attacks on the World Trade Center and Pentagon. The ISPR warns that "if the public and Congress expect significant improvements in this Nation's ability to respond to catastrophic oil spills, additional funding will be needed for improvements." In addition to failed communication protocols, the report criticized the Coast Guard's lack of attention to environmentally sensitive areas saying, "had they been given appropriate attention … adverse impacts could have been much less."

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17. Draft Proposal for Stream Protection Draws Disagreement

In April 2010, the Office of Surface Mining (OSM) published in the *Federal Register* a Notice of Intent to conduct an Environmental Impact Statement for the Stream Protection Rule, which will replace the Bush Administration's Stream Buffer Zone Rule. Provisions under consideration in the new rule include requiring coal mining companies that elect to mine through or bury streams to gather more specific baseline data on a proposed mine site's hydrology, geology, and aquatic biology; finalizing a definition of the term "material damage to the hydrologic balance" of watersheds outside the permit area; and developing more effective requirements for mine operators that disagree with the requirement that mined areas be reclaimed to their approximate original contour. In January of 2011, an Associated Press report published in the Charleston Gazette disclosed government documents that estimated job losses in the thousands as a result of the proposed changes. In April, a group of bipartisan senators from coal states asked for a congressional investigation of possible job losses as a result of the new rule. Senators John Barrasso (R-WY), Joe Manchin (D-WV), and Rand Paul (R-KY) sent a letter to Chairman Jeff Bingaman (D-NM) of the Energy and Natural Resources Committee requesting a hearing. As of May 6 2011, no hearing has been scheduled.

House Republicans had the chance to question OSM Director Joe Pizarchik on April 7 at a budget hearing. Representative Bill Johnson (R-OH), who has sponsored a House amendment to stop OSM's efforts to draft the proposal (H. AMDT. 131), and Subcommittee on Energy and Mineral Resources Chairman Doug Lamborn (R-CO) were particularly vocal about their disagreement with the proposals. Even the lone environmentalist witness disagreed with OSM's draft proposals and suggested the Obama Administration instead should reinstate the rule promulgated during the Reagan Administration.

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18. EPA Releases Clean Water Act Guidance Draft

After some companies threatened to sue the Environmental Protection Agency (EPA) regarding attempts to strengthen the regulation of waterways and streams under the Clean Water Act (CWA), the EPA released a scaled back draft on water regulations in April. The draft starts by saying that the policy "is not a rule, hence it is not binding and lacks the force of law." The CWA applies to "navigable waters of the United States" and ever since its enactment, there have been questions about what bodies of water are covered by the act. Defining the scope of the CWA has been the subject of multiple Supreme Court rulings and many failed legislative attempts. In this latest interpretation, EPA is basing its guidelines on a "significant nexus" model proposed by Justice Anthony Kennedy in *Rapanos vs. The United States*.

That ruling did not establish a case law and several justices wrote their own opinions. Justice Kennedy wrote that protected waters must share a "significant nexus" with the "navigable" waterways protected under the CWA. This nexus would exist when a wetland or waterbody, either by itself or in combination with other similar sites, significantly affects the physical, biological, and chemical integrity of the downstream navigable waterway.

EPA is accepting public comments on the guidance draft.

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19. EPA Publishes Greenhouse Gas Inventory for 1990-2009

In April, the U.S. Environmental Protection Agency (EPA) released the sixteenth annual U.S. greenhouse gas inventory. The Inventory of U.S Greenhouse Gas Emissions and Sinks: 1990-2009 shows overall emissions in 2009 decreased by 6.1 percent from 2008. A decrease in fuel and electricity consumption across the United States is the main factor contributing to the overall decline. Total emissions of the six main greenhouse gases in 2009 were equivalent to 6,633 million metric tons of carbon dioxide, the second lowest level since 1990, though total U.S. emissions have increased by 7.3 percent from 1990 to 2009.

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20. Bureau of Reclamation Predicts Dry Future for Western River Basins

A report released in April by the Bureau of Reclamation found that climate change will likely reduce western major river basin flows by as much as 20% by the end of the century. Largely based on existing research from the U.S. Geological Survey (USGS), the National Oceanic and Atmospheric Administration, and the Army Corps of Engineers, this report uses new global circulation models (GCM's) to predict future snowpack, runoff, and precipitation in seven major western river basins. The northwestern

Columbia River Basin, Upper Colorado River Basin, Missouri River Basin, and Sacramento-San Joaquin River Basin will generally see increases in precipitation though the more southern Klamath River Basin, Upper Rio Grande Basin, Tuckee River Basin, and the Lower Colorado River Basin will see decreases in precipitation, runoff, and snowpack. While western water management and infrastructure is designed for hydrological variability, the report warns warmer conditions could present dynamics these systems might not be prepared for. The report, titled *Climate Change and Water*, is required in section 9503(c) of the SECURE Water Act of 2009 which was part of the Omnibus Public Land Management Act (PL 111-11).

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21. Earthquake Prediction Council Releases Report on New Madrid

The National Earthquake Prediction Evaluation Council, a federal advisory committee established in legislation authorizing the National Earthquake Hazards Reduction Program, has issued a new report that confirms the threat of significant seismic hazards in the New Madrid Seismic Zone. The New Madrid Seismic Zone encompasses parts of Alabama, Kentucky, Mississippi, Tennessee, Illinois, Indiana, Arkansas and Missouri. Three strong earthquakes struck the area in 1811-1812 and though no significant seismic activity has occurred since, the council still concludes the fault zone “is at significant risk for damaging earthquakes that must be accounted for in urban planning and development.” More information on the council and the report can be found on the council’s website.

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22. Declining U.S. Academic Fleet Could Impede Polar Research

The National Academy of Sciences released a finding this month that recommends a coordinated national plan to revitalize the nation’s declining ocean research infrastructure. Most notably, it highlighted the grim future for America’s polar icebreaker fleet – currently only three ships and expected to decline to two soon. These polar icebreakers, operated by the Coast Guard, are used in the Arctic and can address urgent issues such as climate change, offshore energy usage, tsunami prediction, and sustainable fisheries. If infrastructure needs are not met in the near future, the federal government may have to resort to leasing icebreaking vessels or working with other nations to resupply its Antarctic research bases and conduct science missions at high latitudes. In 2007, the National Research Council released a report with similar warnings.

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23. Report on China's Science and Technology Capabilities Released

Established by Congress in 2000, the U.S.-China Economic and Security Review Commission released a report that describes China's capabilities in science and technology as compared to the global economy. *China’s Program for Science and Technology Modernization: Implications for American Competitiveness* uses three sectors -- semiconductors, nuclear energy, and nanotechnology -- as case studies to underline China’s low-cost manufacturing capabilities, export promotion strategy, and "shrewd appropriation" of international technologies.

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24. Independent Report Shows Increase in Domestic Natural Gas

On April 27, 2011, the Potential Gas Committee released results of its latest biennial assessment of the nation’s natural gas resources. The committee estimated the United States has a total resource base of 1.898 trillion cubic feet (Tcf) of technically recoverable natural gas as of year-end 2010. This is a substantial increase due to reevaluation of shale-gas plays in the Gulf Coast, Mid-Continent, and the Rockies. This assessment includes 1,739 Tcf of gas attributable to “traditional” reservoirs (e.g., conventional, tight sands and carbonates, and shales) and 159 Tcf in coalbed reservoirs. Furthermore, if Energy Information Agency’s latest determination of proved dry-gas reserves are included (273 Tcf as of year-end 2009), the United States has a total available future supply of 2,170 Tcf, an increase of 89 Tcf over the previous evaluation. Details of the assessment and data tables can be found at the committee’s website.

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25. University of Virginia Resists Subpoena for Professor's Research

Beginning a year ago in April 2010, Virginia Attorney General Ken Cuccinelli has sent several subpoenas to the University of Virginia (UVA) to try and obtain several emails and documents related to former professor and climate scientist, Michael Mann. The American Tradition Institute, a conservative group, has now issued a civil subpoena seeking the same information. Though the case is likely to be heard in the fall, UVA has already responded to the group this April with a letter claiming it will use "all available" exemptions under the Freedom of Information Act. "While the University is, of course, committed to comply with the requirements of law, I wish to reassure you that this commitment will be carried out to the fullest extent possible consistent with the interests of faculty in academic freedom and scholarship," wrote University President Teresa Sullivan. The American Tradition Institute said they have submitted the request for taxpayers' benefit.

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26. Tennessee House Passes Anti-Evolution Bill; Louisiana's Revisited

On April 7, 2011, the Tennessee House of Representatives passed the “anti-evolution” bill HB 368 on a party-line vote. The bill would require education authorities to "assist teachers to find effective ways to present the science curriculum as it addresses scientific controversies" and allow teachers to "help students understand, analyze, critique, and review in an objective manner the scientific strengths and scientific weaknesses of existing scientific theories covered in the course being taught." The bill specifically identifies scientific topics of "biological evolution, the chemical origins of life, global warming, and human cloning." Tennessee State Senator Bo Watson, who had crafted a companion bill to HB 368, has officially tabled his legislation. Concern from local scientists convinced Watson to defer the bill.

Interestingly, Louisiana’s similar law which was passed in 2008 is coming under fire at the same time Tennessee is trying to pass theirs. Baton Rouge high school senior Zack Kopplin has spearheaded an effort to support SB 70, legislation to repeal the 2008 Louisiana Science Education Act. Similar to Tennessee’s proposed HB 368, Louisiana’s current law permits teachers to single out certain scientific theories, including evolution and global warming, as controversial, and to teach alternate theories. A collection of scientists, including 42 Nobel laureates have signed on to Kopplin’s efforts. Kopplin’s website which includes the names of all 42 Nobel laureates and more can be found here.

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27. Pennsylvania Stops Drilling Waste Water Transfer to Treatment Plants

The Pennsylvania Department of the Environment has asked Marcellus Shale gas drillers to voluntarily stop sending wastewater to water treatment facilities starting on May 19, 2011. In a press release, the department noted increased levels of bromide in water handled by treatment facilities in the western part of the state where the most drilling is occurring. The bromide may convert to total trihalomethanes when combined with chlorine in these facilities and these compounds are carcinogenic. While the department notes that there are many sources of bromide, they believe that reducing the drilling wastewaters will decrease the bromide levels in water at treatment facilities.

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28. Geochemist Jill Banfield Wins Two Prominent Awards

Dr. Jillian Banfield, Professor of Earth and Planetary Science, of Environmental Science Policy and Management, and of Materials Science at the University of California-Berkeley, is the recipient of two major awards. The geochemist received the 2011 North American L’Oreal-UNESCO “For Women in Science” Award last month for her research on bacterial and material behavior under extreme conditions relevant to the environment and the Earth. Before the ceremony, Dr. Banfield reflected on her career by saying, “most people nowadays accept that the real frontiers are at the interfaces, the places people haven’t worked traditionally and where discoveries can be made.” Banfield is also one of seven recipients of the 2011 Benjamin Franklin Medal, presented every year by the Franklin Institute in Philadelphia.

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29. 2011-2012 William L. Fisher Congressional Geoscience Fellow

The 2011-2012 William L. Fisher Congressional Geoscience Fellow is Aisha Morris. Aisha received her Bachelor of Science in Geology from Duke University and her Masters in Marine Geology and Geophysics from the University of Hawaii. She completed her Doctoral degree in Planetary Geology at the University of Hawaii under the tutelage of Peter Mouginis-Mark. The focus of her doctoral degree was “Topographic and geomorphologic studies of volcanic and impact-related landforms on Earth and Mars”. She is currently a post-doctoral fellow for the Alliance for Graduate Education and the Professoriate (AGEP) at Syracuse University. Aisha serves as an instructor for undergraduate geology courses and for the Research Scholars High School STEP program. She also works with Girls Eyes Only (GEO), a science enrichment program and Girls Get It!, a science camp; both for middle school girls in the Syracuse area.

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30. Citizen Geoscientists Make Their Case on Capitol Hill

The Pennsylvania Department of the Environment has asked Marcellus Shale gas drillers to voluntarily stop sending wastewater to water treatment facilities starting on May 19, 2011. In a press release, the department noted increased levels of bromide in water handled by treatment facilities in the western part of the state where the most drilling is occurring. The bromide may convert to total trihalomethanes when combined with chlorine in these facilities and these compounds are carcinogenic. While the department notes that there are many sources of bromide, they believe that reducing the drilling wastewaters will decrease the bromide levels in water at treatment facilities.

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31. Key Reports and Publications

*****Congressional Research Services (CRS)*****

Closing Yucca Mountain: Litigation Associated with Attempts to Abandon the Planned Nuclear Waste Repository

Released March 4, 2011. The 1982 Nuclear Waste Policy Act was an attempt to legislate a national disposal program for the country's highly radioactive nuclear waste. In 1987, Congress designated Yucca Mountain as the site for a deep underground geological storage facility. The Obama Administration has sought to shut down the repository amidst fierce opposition from Republican lawmakers and several states. This report catalogs the various lawsuits surrounding the contentious closing of the site.

The 2010 Oil Spill: MMS/BOEMRE and NEPA

Released April 17, 2011. The *Deepwater Horizon* oil well was on a tract leased by BP, having obtained a lease and the relevant permits from the federal government. Under relevant federal law, federal actions that may have adverse environmental effects are required to be reviewed for potential environmental harm under the National Environmental Policy Act (NEPA). This report reviews those environmental procedures.

Japan's 2011 Earthquake and Tsunami: Economic Effects and Implications for the United States

Released April 17, 2011. This report describes the economic effects of the Tohoku earthquake last month as they relate to the United States. The net impact of the disaster on global GDP is that it is expected to shave about a half percentage point off global economic growth with about half of that effect confined to Japan, itself. Congressional interest on the economic side centers on humanitarian concerns, radioactive fallout reaching the United States, the impact on U.S. citizens and American companies in Japan, the effects on trade and supply chain disruptions, and increased volatility in Japanese and U.S. financial markets, interest rates, and the yen-dollar exchange rate.

Commerce, Justice, Science, and Related Agencies: FY2011 Appropriations

Released March 22, 2011. This report provides an overview of actions taken by Congress to provide FY2011 appropriations for Commerce, Justice, Science, and Related Agencies (CJS). It also provides an overview of FY2010 appropriations for agencies and bureaus funded under the CJS bill.

FY2011 Appropriations: A Side-by-Side Comparison of Key Proposals

Released March 18, 2011. Fiscal Year (FY) 2011 funding levels were not enacted in the 111th Congress. Thus, the debate over FY 2011 appropriations has continued into the 112th Congress. Moreover, the FY 2011 spending proposals have become a key focal point in the budget debates between the now-Republican-controlled House of Representatives and the Obama Administration. This report is intended to facilitate comparison of three key spending proposals for FY 2011--the Administration's budget request, H.R. 1, and S.Amdt. 149 --to FY 2010 enacted funding levels.

Federal Research and Development Funding: FY2012

Released March 29, 2011. President Obama has requested $147.911 billion for research and development (R&D) in Fiscal Year (FY) 2012, a $772 million (0.5%) increase from the FY2010 actual R&D funding level of $147.139 billion. Congress will play a central role in defining the nation's R&D priorities, especially with respect to two overarching issues: the extent to which the federal R&D investment can grow in the context of increased pressure on discretionary spending and how available funding will be prioritized and allocated. This report breaks down the R&D budget program by program.

Global Natural Gas: A Growing Resource

Released April 17, 2011. This report briefly explains key aspects of global natural gas markets, including supply and demand, as well as major U.S. developments. Improved methods to extract natural gas from certain shale formations have significantly increased the resource profile of the United States, which has spurred other countries to try to develop shale gas. If the United States and other countries can bring large new volumes of natural gas to market, then natural gas could play a larger role in the world's economy.

The Helium-3 Shortage: Supply, Demand, and Options for Congress

Released April 17, 2011. The world is experiencing a shortage of helium-3, a rare isotope of helium with applications in homeland security, national security, medicine, industry, and science. For many years the supply of helium-3 from the nuclear weapons program outstripped the demand for helium-3. The demand was small enough that a substantial stockpile of helium-3 accumulated. After the terrorist attacks of September 11, 2001, the federal government began deploying neutron detectors at the U.S. border to help secure the nation against smuggled nuclear and radiological material. The deployment of this equipment created new demand for helium-3. This report tells the history of helium-3 demand in the United States and recommends to Congress solutions to combat shortage.

Water Infrastructure Needs and Investments: Review and Analysis of Key Issues

Released April 17, 2011. In each Congress since the 107th, House and Senate committees acted on legislation to reauthorize and modify infrastructure financing programs in the Clean Water Act and Safe Drinking Water Act, but no bills were enacted. The

Bush Administration addressed water infrastructure in a number of general ways, but did not offer legislative proposals of its own. EPA's principal initiative has been to support strategies intended to ensure that infrastructure investment needs are met in an efficient, timely, and equitable manner. The Obama Administration has focused attention on providing increased federal budgetary resources for water infrastructure investments and is developing a water infrastructure sustainability policy. This report identifies a number of issues that continue to receive attention in connection with water infrastructure investment.

Ocean Dumping Act: A Summary of the Law

Released April 17, 2011. Passed into law in 1972, the Marine Protection, Research, and Sanctuaries Act regulates international ocean disposal of materials and funds related research. Regulation of the law is often referred to as the Ocean Dumping Act. This report is a summary of the law and describes the few new authorities attached to the law since 1972.

*****National Academy of Sciences (NAS)*****

Critical Infrastructure for Ocean Research and Societal Needs in 2030

Ocean research in the United States requires an extensive network of sensors, ships, samplers, data systems, supporting facilities and trained personnel. This report recommends a coordinated national plan for making future investments to ensure these capabilities and infrastructure are available for fundamental research and societal needs in 2030. Research vessels, including polar icebreakers, were stressed as the most important components of ocean infrastructure.

*****Government Accountability Office (GAO)*****

International Space Station (ISS) – Ongoing Assessments for Life Extension Appear to be Supported

This report was prepared for Chairman Jay Rockefeller of the Senate Commerce, Science, and Transportation Committee and Chairman Ralph Hall of the House Science, Space, and Technology committee as mandated in the National Aeronautics and Space Administration (NASA) Authorization Act of 2010. It provides an evaluation of the accuracy and level of confidence in the findings contained in NASA's assessment of the essential modules, operational systems and components, structural elements, and permanent scientific equipment required to ensure complete, effective, and safe functioning and full scientific utilization of the International Space Station through 2020.

Federal Oil and Gas: Interagency Committee Needs to Better Coordinate Research on Oil Pollution Prevention and Response

Prepared at the request of Congresswoman Lynn Woolsey (D-CA), this report focused on the activities of the Interagency Coordinating Committee on Oil Pollution Research which was established within the language of the Oil Pollution Act of 1990. According to GAO's analysis of interagency committee reports and documents, the interagency committee has played a limited role in coordinating oil pollution research. Among the shortcomings identified in the report, the committee's research priorities plan, drafted in 1997, does not reflect changes in the oil production and transportation sectors, such as a significant increase in deepwater drilling. GAO's recommendations for the interagency committee can be found in the report.

Energy Water Nexus: The Amount of Energy Needed to Supply, Use and Treat Water is Location-Specific and Can Be Reduced by Certain Technologies and Approaches

As the demand for water increases, the energy demands associated with providing water services are similarly expected to grow. GAO was asked by Ranking Member Eddie Bernice Johnson of the House Science, Space, and Technology to describe what is known about the energy needed for the urban water lifecycle and technologies and approaches that could lessen the energy needed for the lifecycle and barriers that exist to their adoption.

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32. Key Federal Register Notices

USGS - There will be a meeting of the National Cooperative Geologic Mapping Program and National Geological and Geophysical Data Preservation Program Advisory Committee in Reston, Virginia on June 22 and 23. [Friday, April 8, 2011 (Volume 76, Number 68)]

NSF - The Advisory Committee for Polar Programs will meet on May 18 at the NSF headquarters in Ballston, Virginia. This is an open meeting. [Friday, April 8, 2011 (Volume 76, Number 68)]

OSTP - This notice sets forth the schedule and summary agenda for the open section of an otherwise closed meeting of the President's Council of Advisors on Science and Technology (PCAST) on May 19 in Washington, DC. [Tuesday, April 12, 2011 (Volume 76, Number 70)]>

EPA – There will be an open meeting of the National Environmental Justice Advisory Council (NEJAC) on May 10 and 11 in Brooklyn, NY. Members of the public are encouraged to provide comments relevant to the specific issues being considered by the NEJAC found in the notice. [Wednesday, April 13, 2011 (Volume 76, Number 71)]

NASA - The National Aeronautics and Space Administration (NASA) announces a meeting of the Earth Science Subcommittee of the NASA Advisory Council. The meeting will be open to the public and held on May 11 and 12 at NASA Headquarters in DC.

[Thursday, April 14, 2011 (Volume 76, Number 72)]

EPA - The Environmental Protection Agency (EPA) is soliciting nominations of scientific experts to be considered for appointment to the Advisory Council on Clean Air Compliance Analysis, Clean Air Scientific Advisory Committee, and the Science Advisory Board. Nominations are to be submitted before May 16, 2011. [Friday, April 15, 2011 (Volume 76, Number 73)]

NASA - The National Aeronautics and Space Administration (NASA) will have a meeting of the Planetary Protection Subcommittee of the NASA Advisory Council on May 11 and 12 in Washington, DC. This will be an open meeting. [Friday, April 15, 2011 (Volume 76, Number 73)]

NOAA – There will be an open meeting on May 16 of the National Oceanic and Atmospheric Administration (NOAA) Science Advisory Board. The meeting will be held at NOAA Headquarters in Silver Spring, MD. [Friday, April 15, 2011 (Volume 76, Number 73)]

NRC – A series of meetings next month and into June will take place at the Nuclear Regulatory Commission's (NRC) headquarters in Rockville, MD. Emergency preparedness, NRC's response to Fukushima reactor meltdown, and other topics will be the focus of these meetings. Most will be open and are available on webcast. [Monday, April 18, 2011 (Volume 76, Number 74)]

DOE - This notice constitutes an open call to the public to submit nominations for membership on the Environmental Management Advisory Board. Nominations will be accepted through May 13, 2011. [Tuesday, April 19, 2011 (Volume 76, Number 75)]

EPA - The Environmental Protection Agency Science Advisory Board (SAB) Drinking Water Council Lead Review Panel will conduct a public teleconference on May 16, 2011. The teleconference is meant to discuss the Council's draft advisory report entitled "SAB Evaluation of the Effectiveness of Partial Lead Service Line Replacements." [Wednesday, April 20, 2011 (Volume 76, Number 76)]

EPA - The Environmental Protection Agency Science Advisory Board (SAB) Staff Office announces two public teleconferences of the SAB Panel to discuss its draft report of the review of EPA's Draft Hydraulic Fracturing Study Plan. The meetings are only publicly available through teleconference. The calls will be held on Thursday, May 19, 2011 from 1 p.m. to 5 p.m. and on Wednesday, May 25, 2011 from 1 p.m. to 5 p.m. (EDT). [Thursday, April 21, 2011 (Volume 76, Number 77)]

NIST – There will be a meeting of the Technology Innovation Program Advisory Board at the National Institute of Standards and Technology's headquarters in Gaithersburg, MD on Wednesday May 18. All visitors must pre-register to be admitted. Details of how to pre-register are included in the notice. [Friday, April 22, 2011 (Volume 76, Number 78)]

BOEMRE - The Outer Continental Shelf Scientific Committee will meet at the Holiday Inn Cape Cod in Hyannis, Massachusetts on May 17 through 19. Instructions on how to acquire an agenda can be found in the notice. All meetings will be open to the public. [Tuesday, April 26, 2011 (Volume 76, Number 80]

DOE – The Nuclear Energy Advisory Committee will meet in Washington on June 15 to discuss the 2011 budget and the status of Nuclear Energy's New Start programs. Details on how to submit comments or speak to the committee can be found in the notice. [Thursday, April 28, 2011 (Volume 76, Number 82)]

DOE - The Blue Ribbon Commission, established by President Obama to review policies for managing the back end of the nuclear fuel cycle, will meet in Washington on May 13. Details on how to submit comments or speak to the commission can be found in the notice. [Thursday, April 28, 2011 (Volume 76, Number 82)]

– The Clean Air Scientific Advisory Committee will conduct an open meeting on May 19 and 20 in Chapel Hill, NC. The agenda and instructions on how to attend can be found in the notice. [Thursday, April 28, 2011 (Volume 76, Number 82)]

NSF – There will be an open meeting of the National Science Foundation Business and Operations Advisory Committee in Ballston, VA on May 17 and 18. [Friday, April 29, 2011 (Volume 76, Number 83)]

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Monthly Review prepared by Linda Rowan and Wilson Bonner, Staff of Government Affairs Program

Sources: Associated Press, AAAS, Environment and Energy Daily, Greenwire, New York Times, Washington Post, Science Magazine, National Academies Press, Government Accountability Office, Thomas, House of Representatives, U.S. Senate, the White House, Department of the Interior, Environmental Protection Agency, Congressional Research Service, Bureau of Reclamation, and The Charleston Gazette

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This monthly review goes out to members of the AGI Government Affairs Program (GAP) Advisory Committee, the leadership of AGI's member societies, and other interested geoscientists as part of a continuing effort to improve communications between GAP and the geosciences community that it serves. For additional information on specific policy issues, please visit the web site or contact us at govt@agiweb.org.

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