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HOUSE OF REPRESENTATIVES

REPORT
109–503

NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM ACT OF 2006

JUNE 15, 2006.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. BOEHLERT, from the Committee on Science, submitted the following

R E P O R T

[To accompany H.R. 5136]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, to whom was referred the bill (H.R. 5136) to establish a National Integrated Drought Information System within the National Oceanic and Atmospheric Administration to improve drought monitoring and forecasting capabilities, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

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49–006

I. AMENDMENT

The amendment is as follows:

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Integrated Drought Information System Act of 2006".

SEC. 2. DEFINITIONS.

In this Act:

(1) DROUGHT.—The term "drought" means a deficiency in precipitation—

(A) that leads to a deficiency in surface or subsurface water supplies (including rivers, streams, wetlands, ground water, soil moisture, reservoir supplies, lake levels, and snow pack); and

(B) that causes or may cause—

(i) substantial economic or social impacts; or

(ii) substantial physical damage or injury to individuals, property, or the environment.

(2) UNDER SECRETARY.—The term "Under Secretary" means the Under Secretary of Commerce for Oceans and Atmosphere.

SEC. 3. NIDIS PROGRAM.

(a) IN GENERAL.—The Under Secretary, through the National Weather Service and other appropriate weather and climate programs in the National Oceanic and Atmospheric Administration, shall establish a National Integrated Drought Information System.

(b) SYSTEM FUNCTIONS.—The National Integrated Drought Information System shall—

(1) provide an effective drought early warning system that—

(A) is a comprehensive system that collects and integrates information on the key indicators of drought in order to make usable, reliable, and timely drought forecasts and assessments of drought, including assessments of the severity of drought conditions and impacts;

(B) communicates drought forecasts, drought conditions, and drought impacts on an ongoing basis to—

(i) decisionmakers at the Federal, regional, State, tribal, and local levels of government;

(ii) the private sector; and

(iii) the public,

in order to engender better informed and more timely decisions thereby leading to reduced impacts and costs; and

(C) includes timely (where possible real-time) data, information, and products that reflect local, regional, and State differences in drought conditions;

(2) coordinate, and integrate as practicable, Federal research in support of a drought early warning system; and

(3) build upon existing forecasting and assessment programs and partnerships.

(c) CONSULTATION.—The Under Secretary shall consult with relevant Federal, regional, State, tribal, and local government agencies, research institutions, and the private sector in the development of the National Integrated Drought Information System.

(d) COOPERATION FROM OTHER FEDERAL AGENCIES.—Each Federal agency shall cooperate as appropriate with the Under Secretary in carrying out this Act.

SEC. 4. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to carry out this Act—

(1) $11,000,000 for fiscal year 2007;

(2) $12,000,000 for fiscal year 2008;

(3) $13,000,000 for fiscal year 2009;

(4) $14,000,000 for fiscal year 2010;

(5) $15,000,000 for fiscal year 2011; and

(6) $16,000,000 for fiscal year 2012.

II. PURPOSE OF THE BILL

The purpose of the bill is to establish a National Integrated Drought Information System within the National Weather Service

of the National Oceanic and Atmospheric Administration to improve drought forecasting and monitoring capabilities.

III. BACKGROUND AND NEED FOR THE LEGISLATION

Drought is neither sudden nor violent but it can be among the most devastating of natural disasters. Unlike other natural disasters, which have impacts that are often intense but localized, drought can simultaneously affect wide swaths of the Nation. In every one of the years from 1885 to 1995, some part of the United States has experienced a severe or extreme drought. The National Oceanic and Atmospheric Administration (NOAA) estimates that drought results in total economic impacts in the U.S. of $6 to $8 billion each year from such impacts as crop loss; premature livestock sales; degraded water quality; decreased tourism revenue from limited rafting, boating, fishing, golfing and skiing; decreased energy generation capacity; increased groundwater pumping costs; and reduced barge tonnage for commercial shipping. According to NOAA, the total cost of particularly severe droughts, including economic impact and government aid to affected communities, has exceeded $60 billion in the past.

Experts in drought mitigation argue that substantial losses from drought are not inevitable. With adequate forecasting and monitoring capabilities, government and business can adjust their activities and substantially mitigate the extent and severity of many impacts of drought. For example, urban water managers can change reservoir release schedules and impose pre-drought water restrictions; agricultural users can alter crop choice and timing of planting to minimize water needs and potential crop loss, including changing crop rotations and use of strategic irrigation techniques; forest managers can alter fire suppression and mitigation plans, including pre-positioning of assets and people, and can heighten public awareness of wildfire prevention needs; waterway managers may be able to plan water releases and dredging activities to maintain open waterways; managers of animal stocks can budget for increased feed costs and can sell excess stock when prices are more favorable; energy providers can manage reservoir levels and fuel supplies to minimize cost increases due to reduced hydropower capacity.

Federal, State and local governments make substantial investments in research on, and monitoring of, drought. But significant weaknesses remain in current systems for drought forecasting and monitoring. Many experts believe these weaknesses need to be addressed by tying together and building on current drought research and monitoring efforts to improve drought forecasting, planning, and mitigation.

Weaknesses in Current Federal Drought Monitoring and Forecasts

Beginning in 1999 and 2000, the Federal Government began providing drought information as two low-resolution-national maps: the U.S. Drought Monitor, and the U.S. Seasonal Drought Outlook.

The Drought Monitor map, updated weekly at http://www.drought.unl.edu/dm/monitor.html. is a subjective assessment of national-scale trends in drought extent and severity. The map is a synthesis of multiple drought indices, outlooks and news accounts produced after consultation among scientists at NOAA, the U.S.

Department of Agriculture (USDA), and the University of Nebraska.

In contrast to the Drought Monitor which assesses current conditions, the U.S. Seasonal Drought Outlook is a forecast that is produced monthly by NOAA. This map and accompanying discussion product, the result of a subjective synthesis of forecast tools, provide a three-month prediction of general, large-scale drought trends and can be found at: http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html.

Water managers, water users, and drought researchers have identified four primary weaknesses in current drought forecast and monitoring efforts. First, no mechanism currently exists to comprehensively assess the extent, severity, or impacts of drought with the level of detail required to support operation decision-making. Determination and assessment of drought is made particularly difficult by the lack of a single definition that is fully embraced by water users, managers, regulators, and scientists. No single definition exists because the definition depends on both the causes and impacts of drought, which may vary greatly from region to region. Partly due to the lack of a standard definition of drought, and partly due to the existence of many disparate monitoring efforts, local governments each use different sets of indicators and triggers to determine when a drought occurs. Equally important, there is no comprehensive effort across all levels of government to measure the impacts of drought, leaving decision-makers in the dark as to the extent and severity of the agricultural, economic, and social consequences of drought.

Second, not all of the data collected by federal programs are delivered in a timely fashion, and in compatible formats. Some of the data come from cooperative programs that require periodic collection and delivery of the data, whereas other data are collected in a continuous manner. Furthermore, different federal programs use different data formats, making the combination of data from multiple sources difficult.

Third, current drought forecast and monitoring products (the U.S. Drought Monitor and U.S. Seasonal Drought Outlook) provide general guidance on current and future drought risk, but do not provide enough detail and are not updated frequently enough to meet the operational needs of most water managers and users. While water managers can use these low resolution maps to communicate the overall state and trends of drought, the maps do not distinguish drought conditions on an individual reservoir or watershed level, which is the level at which water managers need information to make operational decisions.

Finally, there is no single coordinating agency that operates a clearinghouse or a prediction model incorporating the drought-related data and tools produced by the many federal, state, and local agencies that work on drought management and that collect drought-related information. Current drought forecasts provided by the federal government involve manually collecting data and products from the many federal, state, tribal and local sources, subjectively weighing the value of the many forecast parameters and indices that may influence drought conditions, and manually drawing maps to represent "best estimates" of drought risk throughout the country.

To address these issues and facilitate the development of a more comprehensive, realtime drought information and forecasting system, NOAA collaborated closely with other federal agencies, the Western Governors' Association (WGA) and other stakeholders to identify the drought product needs of state and local users and developed a plan for a National Integrated Drought Information System (NIDIS). The key goals of NIDIS over the next five years are: to expand monitoring and data collection systems to include coordinated, comprehensive coverage of key indicators such as soil moisture and ground water; (2) to implement an integrated data collection and dissemination system; and (3) to develop effective and useful tools to support analysis and decision-making at all levels and geographic scales.

Under the proposed NIDIS plan, coordination of monitoring efforts across agencies is expected to lead to more efficient and effective data collection, decreased duplication of effort, and more even and complete monitoring of critical regions. Expanded monitoring will include collection of soil moisture data (soil moisture is currently modeled but only sparsely measured) and more comprehensive groundwater measurements.

Also as part of NIDIS, NOAA will develop a web portal as a single point of information for users of drought related information and tools, eliminating the need for water managers to collect data from multiple sites, in multiple formats. Part of the NIDIS plan includes development of new and higher-resolution tools to allow users to more closely examine the drought risk in their state, watershed, and county. NOAA also expects to significantly improve drought forecasts through an initiative to statistically re-evaluate drought-related data from the past 100 years. This effort is expected to yield a better understanding of the conditions that presage drought in all regions of the country, providing information that NOAA scientists can use to improve drought prediction models.

NOAA projects that it will take five to six years to fully implement NIDIS with gradual improvement in NOAA's drought forecasting and monitoring capabilities occurring throughout the implementation process. The social, economic and environmental effects of drought are expected to grow as growing U.S. populations demand more water for more uses, including municipal and agricultural use, recreation and habitat preservation.

IV. SUMMARY OF HEARINGS

On May 4, 2006, the Subcommittee on Environment, Technology, and Standards held a hearing titled "Improving Drought Monitoring and Forecasting: H.R. 5136, the National Integrated Drought Information System Act of 2006" to better understand ways to forecast and predict occurrences of drought, which can have profound economic, social, and environmental impacts, and to receive comments on H.R. 5136, the National Integrated Drought Information System Act of 2006.

The witnesses were: (1) Dr. Chester Koblinsky, Director, Climate Program Office, National Oceanic and Atmospheric Administration; (2) Mr. Duane Smith, Vice Chair, Western States Water Council; Representative, Western Governors' Association; (3) Mr. Kenneth Dierschke, President, Texas Farm Bureau; (4) Mr. Marc D. Waage,

P.E., Manager, Raw Water Supply, Denver Water, Denver, Colorado; (5) Dr. Donald A. Wilhite, Director, National Drought Mitigation Center, University of Nebraska.

All of the witnesses expressed support for more effective drought forecasting and monitoring envisioned as part of NIDIS in H.R. 5136.

Dr. Koblinsky discussed the role that NOAA has played in monitoring drought, specifically mentioning the U.S. Drought Monitor—a weekly update of drought conditions throughout the United States. He said that because drought is an interplay between water availability and human use, supplying better information to natural resource managers will help alleviate the effects of drought. According to Dr. Koblinsky, NIDIS will incorporate existing drought information and forecasts, and fill information and data gaps with additional observations and research in order to provide this critical information.

Mr. Smith testified that much of the currently available information is not presented in a usable format. NIDIS, Mr. Smith said, will integrate a variety of forecasting methods, analysis techniques and observations to allow decision-makers to easily access climatic information. Mr. Smith stated that NIDIS will include assessments from sectors that have not previously been considered, such as livestock, timber, wildlife, energy, recreation, and tourism sectors. Mr. Smith reported that the Western Governors unanimously support NIDIS.

Mr. Dierschke discussed the devastating effects of drought on his home state of Texas, including over $1 billion in damages to the agricultural community in 2005 alone. Beyond direct crop loss, Mr. Dierschke mentioned the long-term effect of deteriorated rangeland. He argued in support of long-term weather forecasting, citing the limitations of current one week forecasts for decision-making. Mr. Dierschke concluded by saying that the Farm Bureau supports H.R. 5136, and that NIDIS will help farmers and ranchers better prepare for the future.

Mr. Waage, the Manager of Raw Water Supply for Denver, discussed the severity of drought in Colorado and how Denver uses weather-related information to budget water. Describing ways that NIDIS will improve drought preparedness, Mr. Waage said NIDIS will: provide a database of up-to-date information; facilitate interaction between the government and those affected by drought; and provide much needed long-range weather forecasts. Mr. Waage strongly supported the bill.

Dr. Wilhite discussed the role that the National Drought Mitigation Center (NDMC) has had in drought monitoring and mitigation, including development of the first Internet based drought impact database. He emphasized the need for sound information to be readily available for decision-makers. Dr. Wilhite said that the NDMC could be a helpful partner for NOAA throughout the implementation of NIDIS and concurred with other witnesses that better climate data, more reliable forecasts and a more timely communication of this data will improve water management. Dr. Whilhite strongly supported the bill.

In response to questions, Dr. Koblinsky discussed the scope of NIDIS in monitoring not only drought and floods, but a variety of climatic states, and discussed how NOAA is using the Ocean Ob-

serving System to gather information that is expected to help develop more accurate long-term forecast tools. While discussing NOAA's current capabilities and potential improvements to those capabilities, he noted several aspects of monitoring and data collection that are in need of improvement, specifically in the fields of soil moisture sensors and stream gauging networks.

V. COMMITTEE ACTIONS

On April 6, 2006, Congressmen Ralph Hall and Mark Udall introduced H.R. 5136, the national Integrated Drought Information System Act of 2006, which was referred to the Committee on Science. On May 4, 2006, the Environment, Technology, and Standards Subcommittee held a hearing on the state of drought forecasting and monitoring, drought information needs of water users, and on the bill itself.

The Subcommittee on Environment, Technology, and Standards also met on May 4, 2006 to consider the bill. Subcommittee Chairman Ehlers offered an amendment, which made technical and clarifying corrections. The amendment was adopted by a voice vote and the Subcommittee favorably reported the bill, H.R. 5136, as amended, by a voice vote, and authorized staff to make technical and conforming changes as necessary.

On June 7, 2006, the Full Committee on Science considered H.R. 5136. Mr. Hall offered a manager's amendment to reduce total authorizations to $81 million. The amendment was agreed to by a voice vote, and the motion to adopt the bill, as amended, was agreed to by a voice vote. Mr. Gordon moved that the Full Committee favorably report H.R. 5136, as amended, to the House with the recommendation that the bill, as amended, do pass, and that the staff be instructed to prepare the legislative report and make necessary technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration. With a quorum present, the motion was agreed to by a voice vote.

VI. SUMMARY OF MAJOR PROVISIONS OF THE BILL AS REPORTED

The Act provides a definion of drought, and establishes a National Integrated Drought Information System (NIDIS) within the National Oceanic and Atmospheric Administration. The Act specifies that NIDIS shall serve as an effective early drought warning system providing the following: (1) a comprehensive system to collect and integrate information on drought for usable, reliable, and timely drought assessments and forecasts; (2) a means to communicate forecasts, conditions and impacts on an ongoing basis to the private sector, and decision-makers at all levels of government to aid timely, informed decisions leading to reduced impacts and costs; and (3) a means to include timely and, to the extent practicable, real-time information reflecting local, regional, and State differences in drought conditions. The Act also specifies that NIDIS shall coordinate and integrate federal research in support of a drought early warning system. NOAA shall consult with relevant government agencies, research institutions and the private sector in the development of NIDIS.

VII. SECTION-BY-SECTION ANALYSIS (BY TITLE AND SECTION), AS REPORTED

Section 1. short title

National Integrated Drought Information System Act of 2006.

Section 2. Definitions

Defines two terms: (1) "drought" means a deficiency in precipitation that leads to a deficiency in surface or subsurface water supplies and that causes (or may cause) substantial economic or social impacts or physical damage or injury to people, property, or the environment; (2) "Under Secretary" means the Under Secretary of Commerce for Oceans and Atmosphere.

Section 3. NIDIS program

Directs the Under Secretary to establish the National Integrated Drought Information System through the National Weather Service and other appropriate programs in NOAA.

Specifies that the system shall provide an effective drought early warning system and shall coordinate and integrate, as practicable, Federal research in support of the system. Specifies that NIDIS: be a comprehensive system that collects and integrates information on drought in order to make usable, reliable, and timely drought forecasts and assessments; communicate drought forecasts, conditions and impacts on an ongoing basis to the public and private sectors, and decision-makers at all levels of government in order to engender informed and timely decisions leading to reduced impacts and costs; include timely, and where practicable, real-time data, information and products reflecting local, regional, and state differences in drought conditions; and build upon existing forecasting and assessment programs and partnerships.

Directs the Under Secretary to consult with relevant Federal, regional, State, tribal and local government agencies, research institutions, and the private sector in the development of NIDIS, and requires each Federal agency to cooperate, as appropriate, with the Under Secretary in carrying out the Act.

Section 4. Authorization of appropriations

Authorizes $11 million for Fiscal Year 2007, $12 million for Fiscal Year 2008, $13 million for Fiscal Year 2009, $14 million for Fiscal Year 2010, and $15 million for Fiscal Year 2011 and $16 million for Fiscal Year 2012.

VIII. COMMITTEE VIEWS

Sec 4(a): NIDIS program established

The Committee commends NOAA and other participating public and private institutions for developing and disseminating useful drought information such as the U.S. Drought Monitor and the U.S. Seasonal Drought Outlook. As the pressure on water resources grows, so does the need for timely information for managing those resources. The Committee believes that NOAA can tap extensive existing resources inside and outside of the agency to develop an effective integrated drought forecast and monitoring system, including drawing on the National Weather Service's (NWS) exper-

tise in managing operational forecast programs and in disseminating timely products to support local decision-making. As it implements the National Integrated Drought Information System, the Committee expects NOAA to first leverage existing information, systems and expertise before investing in new capabilities.

As a first step towards coordination and integration of existing efforts, not later than one year after the date of enactment of this Act, the Committee expects NOAA to produce a report, with input from other Federal and non-Federal entities, that identifies and inventories current information, systems, expertise and other resources that can contribute to, and be incorporated into, NIDIS. The report shall be made widely available to stakeholders and the public, and copies are to be delivered to the House Committee on Science and the Senate Committee on Commerce, Science, and Transportation.

Sec 4(b): System functions

The information and products produced by NIDIS must be effectively communicated to decision-makers at all levels of government (including Federal, state, local, and tribal governments) and public and private users on an ongoing, and where possible, real-time, basis. The Committee expects NOAA to make use of its experience disseminating other climate and weather products in support of decision-making, as well as knowledge gained from direct study of how end users interpret hydrologic forecasts, such as the Forecast Evaluation Tool studies funded by NOAA's Office of Global Programs. The Committee expects NOAA's activities to include engaging end users in the development of drought-related products. The Committee further expects NOAA to work with state, regional, and local entities to ensure that the drought-related data, information and products developed and disseminated through NIDIS are put to effective use. This includes, but is not limited to, encouraging and supporting the development and implementation of drought response plans.

Sec 4(b)(3): Building on existing efforts

Existing efforts by Federal, State, and other entities provide an extensive base on which NIDIS can be built. The Committee intends NIDIS to provide an example for U.S. efforts to establish a Global Earth Observing System of Systems that shall coordinate and integrate existing operational environmental observation systems.

The Committee expects NOAA to coordinate the activities of NIDIS with existing established drought-related monitoring, information, and forecasting systems, including efforts to assess social, economic and environmental impacts of drought, such as the National Drought Mitigation Center, U.S. Geological Survey stream gauge networks, and NOAA's Regional Climate Centers and Regional Integrated Science and Assessment program, and university-based programs with expertise in climatic, mesonet, or drought-related issues (such as NOAA's existing partnerships with the Oklahoma Climatological Survey, the Cooperative Institute for Research in Environmental Sciences in Colorado, and the Utah Climate Center at Utah State University).

The Committee notes that NIDIS will integrate information that could be useful for planning related to any extremes of the hydrologic cycle, including both drought and flooding. Measurement of precipitation, winds, ground water, soil saturation as well as snowpack, snow depth and coverage will greatly facilitate hydrological forecasting to predict and mitigate the impacts of both drought and flooding.

Sec 4(c): Consultation

The Committee expects NOAA to consult on an ongoing basis with Federal, regional, state, local, tribal, public and private entities that are involved in the monitoring or prediction of, or affected by, drought.

Sec 4(d): Cooperation from other Federal Agencies

NIDIS shall build on existing monitoring efforts of Federal agencies. To prevent unnecessary duplication of effort and to make the best possible use of federal resources, the Act requires all Federal agencies that collect or produce information that NOAA deems useful to NIDIS to cooperate fully, at whatever level is necessary to ensure success of the system, in making that information available in a timely manner.

IX. COST ESTIMATE

A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act of 1974 has been timely submitted to the Committee on Science prior to the filing of this report and is included in Section X of this report pursuant to House Rule XIII, clause 3(c)(3).

H.R. 5136 does not contain new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 5136 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in Section X of this report.

X. CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

H.R.5136—National Integrated Drought Information System Act of 2006

Summary: H.R. 5136 would direct the National Oceanic and Atmospheric Administration (NOAA) to establish an integrated drought information system within the National Weather Service. The new system would provide early warnings of droughts by collecting and disseminating information and would coordinate federal research on this subject. The bill would authorize the appropriation of between $11 million and $16 million a year over the 2007–2012 period.

Assuming appropriation of the authorized amounts, CBO estimates that implementing H.R 5136 would cost $4 million in 2007 and $55 million over the 2007–2011 period. (An additional $26 million would be spent after 2011, including $16 million authorized to be appropriated for 2012.) CBO estimates that enacting this bill would have no effect on revenues or direct spending.

H.R. 5136 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated Cost to the Federal Government: The estimated budgetary impact of H.R. 5136 is shown in the following table. The costs of this legislation fall within budget function 300 (natural resources and environment).

	By fiscal year, in millions of dollars—					
	2007	2008	2009	2010	2011	2012
CHANGES IN SPENDING SUBJECT TO APPROPRIATION						
Authorization Level	11	12	13	14	15	16
Estimated Outlays	4	11	12	14	14	15

Basis of Estimate: For this estimate, CBO assumes that H.R. 5136 will be enacted by the beginning of fiscal year 2007 and that the entire amounts authorized for the drought information system will be appropriated for each year. Outlays for the new system have been estimated on the basis of spending patterns for similar NOAA programs.

Intergovernmental and Private-Sector Impact: H.R. 5136 contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments.

Estimate Prepared by: Federal Costs: Deborah Reis. Impact on State, local, and Tribal Governments: Lisa Ramirez-Branum Impact on the Private Sector: Craig Cammarata

Estimate Approved by: Peter H. Fontaine Deputy Assistant Director for Budget Analysis.

June 9, 2006.

Hon. SHERWOOD L. BOEHLERT,
Chairman, Committee on Science,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 5136, the National Integrated Drought Information System Act of 2006.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Deborah Reis.

Sincerely,

DONALD B. MARRON, Acting Director.

Enclosure.

XI. COMPLIANCE WITH PUBLIC LAW 104–4

H.R. 5136 contains no unfunded mandates.

XII. COMMITTEE OVERSIGHT FINDINGS AND RECOMMENDATIONS

The committee on Science's oversight findings and recommendations are reflected in the body of this report.

XIII. STATEMENT ON GENERAL PERFORMANCE GOALS AND OBJECTIVES

Pursuant to clause (3)(c) of House rule XIII, the goals of H.R. 5136 are (1) to improve upon existing drought-related observations and develop a comprehensive drought information portal that is easily accessible by all water managers and interested parties, (2)

increase research to improve forecasts, monitoring, analyses, and decision support related to drought and reducing drought impacts, (3) increase and improve monitoring, assessment, analysis and communication of the social, economic, and environmental impacts of drought, including quantitative products.

XIV. CONSTITUTIONAL AUTHORITY STATEMENT

Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 5136.

XV. FEDERAL ADVISORY COMMITTEE STATEMENT

H.R. 5136, does not create any advisory committees.

XVI. CONGRESSIONAL ACCOUNTABILITY ACT

The Committee finds that H.R. 5136 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Pub. L. 104–1).

XVII. STATEMENT ON PREEMPTION OF STATE, LOCAL, OR TRIBAL LAW

This bill is not intended to preempt any State, local, or tribal law.

XVIII. CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

This legislation does not amend any existing Federal statute.

XIX. COMMITTEE RECOMMENDATIONS

On 7 June, 2006, a quorum being present, the Committee on Science favorably reported the National Integrated Drought Information System Act of 2006, as amended, by a voice vote, and recommended its enactment.

XX. PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS ON H.R. 5136, NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM ACT OF 2006

THURSDAY, MAY 4, 2006

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to other business, at 11:41 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Vernon J. Ehlers [Chairman of the Subcommittee] presiding.

Chairman EHLERS. The Subcommittee markup of H.R. 5136, *National Integrated Drought Information System Act of 2006.* If the witnesses wish to stay for the markup, they may.

The Subcommittee on Environment, Technology, and Standards will come to order. Pursuant to notice, the Subcommittee meets to consider the following measure, H.R. 5136, *National Integrated Drought Information System Act of 2006.*

We will now proceed with the markup, beginning with opening statements, and the Chairman yields himself such time as he may consume.

I thank everyone for staying for today's brief Subcommittee markup of H.R. 5136, *National Integrated Drought Information System Act of 2006.* H.R. 5136 directs NOAA to establish a National Integrated Drought Information System, known as NIDIS. The system will provide an effective drought early warning system that will help water resource managers make important decisions to mitigate the impacts of drought.

I have one short amendment, to clarify some sections of the bill, and we do not anticipate any other amendments today. I thank Mr. Hall and Mr. Udall for developing this important legislation, and I urge my colleagues to support my amendment, and then to move the underlying bill onto the Full Committee for its consideration.

[The prepared statement of Chairman Ehlers follows:]

PREPARED STATEMENT OF CHAIRMAN VERNON J. EHLERS

I thank everyone for staying for today's brief Subcommittee markup of H.R. 5136, *National Integrated Drought Information System Act of 2006.* H.R. 5136 directs NOAA to establish a National Integrated Drought Information System (known as NIDIS, nye-diss). The system will provide an effective drought early warning system

that will help water resource managers make important decisions to mitigate the impacts of drought. I have one short amendment to clarify some sections of the bill and we do not anticipate any other amendments today. I thank Mr. Hall and Mr. Udall for developing this important legislation and I urge my colleagues to support my amendment and then to move the underlying bill onto the Full Committee for its consideration.

I now yield to Mr. Wu for an opening statement.

Chairman EHLERS. I now yield to Mr. Wu for an opening statement.

Mr. WU. Thank you very much, Mr. Chairman.

Drought is a bipartisan issue. A National Integrated Drought Information System will provide an important tool to decision-makers, to mitigate the effects of drought on our economy, environment, and society.

I thank Mr. Hall and Mr. Udall for introducing the legislation, and you, Mr. Chairman, for a perfecting amendment, and I also thank the Chairman and his staff for cooperating so fully with my colleagues and staff on this very important issue.

I fully support the bill, and in order to expedite consideration of H.R. 5136, I would conclude by encouraging my colleagues to join me in support of this legislation.

I yield back the balance of my time.

Chairman EHLERS. The gentleman yields back the balance of his time. Without objection, all other Members may place statements in the record. So ordered.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

First, I would like to thank the Chairman and Ranking Member for scheduling this hearing and markup and assisting the speedy consideration of this bill.

I would also like to welcome our witnesses here today. I am very interested to hear from each of you about your experiences with planning for drought as well as the potential for a system such as NIDIS.

As most of you know, the western portion of this country have experienced severe drought conditions in the past few years.

In my own home State of Colorado, the reduced precipitation in addition to high temperatures have caused extreme wildfire conditions, water restrictions, a decline in tourism, reduced crop yields, and many other harmful effects.

There is no doubt that drought has extremely harmful affects on our economy, however it is not always addressed as a natural disasters because it is slow to develop.

Unlike disasters such as tornadoes, droughts do not have a clear beginning or end, but rather precipitation slowly declines and our reservoirs and soil becomes increasingly drier.

While the Department of Homeland Security is working to prepare for natural disasters such as floods and hurricanes, the Federal Government is not doing enough to mitigate and reduce the effects of drought.

I do not want to disparage the current efforts of NOAA and the Drought Monitor. This program provides important seasonal drought information that has aided countless communities to make decisions to mitigate drought.

But I believe there is much more NOAA can do to provide detailed, seasonal and long-term, drought monitors on a regional and localized basis.

I also believe we must do this by making information easily accessible and understandable to the general public.

There are several different federal agencies that have some involvement in drought monitoring or forecasts.

Often their information is not available to the general consumer, or requires a user to visit several different locations to piece together an accurate picture of the drought conditions in their area.

The federal investment in drought research and mitigation is only useful if decision-makers can obtain and utilize the information.

This is where I believe NIDIS can be most useful. Not only will this allow for more comprehensive drought monitoring and forecasting, but also can provide a one stop shop for drought information.

As one of the sponsors of this legislation, it is no surprise that I am supportive of the NIDIS proposal.

But we are here today to hear from our witnesses about NIDIS.

And I am intrigued to learn their opinions about NIDIS and how it can be most effective as well as what improvements we can make to our drought monitoring systems to provide the most informative data.

I again thank our witnesses for joining us here today and look forward to your testimony.

[The prepared statement of Mr. Matheson follows:]

PREPARED STATEMENT OF REPRESENTATIVE JIM MATHESON

I want to begin today by thanking the Subcommittee on Environment, Technology, and Standards for holding this hearing and for bringing attention to an issue that resonates deeply with my constituents and residents in every state.

Only a few years ago, Utah experienced its worst drought in over two decades. As I witnessed the profound impact of water scarcity on agricultural crop losses, forest fires, and the day-to-day lives of Utahans, I felt it was time to focus national awareness on the topic of drought and its impact on Utah's economy and resources. In 2002, with the help of Science Committee staff, I hosted a similar Full Committee hearing in Salt Lake City entitled, "Drought: Prediction, Preparation, and Response." We put together an expert panel of witnesses who illustrated many of the major challenges posed by drought in the West today and highlighted the need to accurately predict and manage drought conditions in this country.

The people of Utah have always understood the scarcity and importance of water much more clearly than the Federal Government. The West was, is, and always will be a land of little rain. When the first settlers arrived in Utah over 150 years ago, they faced huge challenges in successfully finding and moving water so that they could grow crops and develop communities. Utah's booming population and rapid growth continues to test the state's ability to meet the increased water demands of its residents to this day.

Recently, Mother Nature has shown Utah her kinder, gentler side, at least temporarily. Last year was wetter than average and drought conditions have somewhat abated for most of the state. But some regions aren't so lucky. Drought continues to affect the American West but is also crippling the southern Great Plains and south Texas. History has shown that no portion of the U.S. is safe from the ravages of extreme or severe drought conditions.

I believe that part of the solution must include a long-term plan to better predict and prepare for the drought conditions we will face throughout the United States. I am pleased the Subcommittee is marking up the bill, H.R. 5136, *National Integrated Drought Information System Act of 2006,* because I believe we need a single, comprehensive network of drought information to update the tools decision-makers need to accurately forecast drought and manage water resources. This bill is a good first step, but I believe we should also invest in data collection by funding the agencies that monitor snowpack, streamflow and soil moisture that would better enable us to predict a drought.

More importantly, I also believe we need a comprehensive federal drought plan that integrates different regional responses and preparation for drought. That is why I am a co-sponsor of bipartisan legislation, H.R. 1386, the *National Drought Preparedness Act,* which calls for improved drought forecasting similar to H.R. 5136. In addition, the *National Drought Preparedness Act* creates a national drought policy, provides additional tools for drought preparedness planning, and coordinates the delivery of federal drought programs.

Drought is not a problem we are going to solve this year. It is complex, and it will continue to affect our nation in profound ways. But I thank the Subcommittee for raising awareness of this issue and moving legislation that helps solve one piece of the puzzle by improving drought forecasting and monitoring. I look forward to all the testimonies today and to working with my colleagues on the Science Committee and in Congress to further address this critical issue.

Thank you.

Chairman EHLERS. I ask unanimous consent for the authority to recess the Subcommittee at any point, and without objection, it is so ordered.

We will now consider the bill H.R. 5136, the *National Integrated Drought Information System Act of 2006.* I ask unanimous consent that the bill is considered as read, and open to amendment at any point.

And let the Members proceed with the amendments in the order of the roster. Without objection, so ordered.

The first amendment on the roster is a manager's amendment offered by the Chair. I have an amendment at the desk. The Clerk shall report the amendment.

The CLERK. Amendment offered by Mr. Ehlers of Michigan.

Chairman EHLERS. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize myself to explain the manager's amendment.

As I mentioned earlier, my amendment simply clarifies the intent of the bill. It emphasizes that NOAA should build upon existing forecasting and assessment programs in developing NIDIS, and makes some small grammatical corrections to the bill text.

Is there further discussion on this amendment? If no, the vote occurs on the amendment. All in favor say aye. Those opposed, say no. The ayes have it, and the amendment is agreed to.

Are there any other amendments? Hearing none, the question is on the bill, H.R. 5136, the *National Integrated Drought Information System Act of 2006,* as amended. All those in favor will say aye. All those opposed will say no.

In the opinion of the Chair, the ayes have it.

I will now recognize Mr. Wu to offer a motion.

Mr. WU. Mr. Chairman, I move that the Subcommittee favorably report the bill, H.R. 5136, as amended, to the Full Committee, with the recommendation that the bill, as amended, be favorably reported to the House.

Further, I ask unanimous consent that the staff be instructed to make all necessary technical and conforming changes to the bill, as amended, in accordance with the recommendations of the Subcommittee.

Chairman EHLERS. The question is on the motion to report the bill, as amended, favorably. Those in favor of the motion will signify by saying aye. Those opposed, no. The ayes have it, and the bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table.

I do want to thank the Members for their attendance. This concludes our Subcommittee markup. The Subcommittee is adjourned.

[Whereupon, at 11:46 a.m., the Subcommittee was adjourned.]

Appendix:

H.R. 5136, Section-by-Section Analysis, Amendment Roster

I

109TH CONGRESS
2D SESSION

H. R. 5136

To establish a National Integrated Drought Information System within the National Oceanic and Atmospheric Administration to improve drought monitoring and forecasting capabilities.

IN THE HOUSE OF REPRESENTATIVES

APRIL 6, 2006

Mr. HALL (for himself and Mr. UDALL of Colorado) introduced the following bill; which was referred to the Committee on Science

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A BILL

To establish a National Integrated Drought Information System within the National Oceanic and Atmospheric Administration to improve drought monitoring and forecasting capabilities.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Integrated Drought Information System Act of 2006".

SEC. 2. DEFINITIONS.

In this Act:

(1) DROUGHT.—The term ''drought'' means a deficiency in precipitation—

(A) that leads to a deficiency in surface or subsurface water supplies (including rivers, streams, wetlands, ground water, soil moisture, reservoir supplies, lake levels, and snow pack); and

(B) that causes or may cause—

(i) substantial economic or social impacts; or

(ii) substantial physical damage or injury to individuals, property, or the environment.

(2) UNDER SECRETARY.—The term ''Under Secretary'' means the Under Secretary of Commerce for Oceans and Atmosphere.

SEC. 4. NIDIS PROGRAM.

(a) IN GENERAL.—The Under Secretary, through the National Weather Service and other appropriate weather and climate programs in the National Oceanic and Atmospheric Administration, shall establish a National Integrated Drought Information System.

(b) SYSTEM FUNCTIONS.—The National Integrated Drought Information System shall—

(1) provide an effective drought early warning system that—

(A) is a comprehensive system that collects and integrates information on the key indicators of drought in order to make usable, reliable, and timely assessments of drought, including assessments of the severity of drought and drought forecasts.

(B) communicates drought forecasts, drought conditions, and drought impacts on an ongoing basis to—

(i) decisionmakers at the Federal, regional, State, tribal, and local levels of government;

(ii) the private sector; and

(iii) the public,

in order to engender better informed and more timely decisions thereby leading to reduced impacts and costs; and

(C) includes timely (where possible real-time) data, information, and products that reflect local, regional, and State differences in drought conditions; and

(2) coordinate, and integrate as practicable, Federal research in support of a drought early warning system.

(c) CONSULTATION.—The Under Secretary shall consult with relevant Federal, regional, State, tribal, and local government agencies, research institutions, and the private sector in the development of the National Integrated Drought Information System.

(d) COOPERATION FROM OTHER FEDERAL AGENCIES.—Each Federal agency shall cooperate as appropriate with the Under Secretary in carrying out this Act.

SEC. 5. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to carry out this Act—

(1) $12,000,000 for fiscal year 2007;

(2) $14,000,000 for fiscal year 2008;

(3) $16,000,000 for fiscal year 2009;

(4) $16,000,000 for fiscal year 2010;

(5) $18,000,000 for fiscal year 2011; and

(6) $18,000,000 for fiscal year 2012.

○

SECTION-BY-SECTION ANALYSIS OF H.R. 5136,
NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM ACT OF 2006

Section 1. Short Title.

National Integrated Drought Information System Act of 2006.

Section 2. Definitions.

Defines two terms: 1) "drought" means a deficiency in precipitation that leads to a deficiency in surface or subsurface water supplies and that causes (or may cause) substantial economic or social impacts or physical damage or injury to people, property, or the environment; 2) "Under Secretary" means the Under Secretary of Commerce for Oceans and Atmosphere.

Section 3. NIDIS Program.

Directs the Under Secretary to establish the National Integrated Drought Information System (NIDIS) through the National Weather Service and other appropriate programs in NOAA.

Specifies that the system shall provide an effective drought early warning system and shall coordinate and integrate federal research in support of the system. Specifies that NIDIS: be a comprehensive system that collects and integrates information on drought for usable, reliable, and timely drought assessments and forecasts; communicate forecasts, conditions and impacts to the public and private sectors, and decision-makers at all levels of government in order to aid timely, informed decisions leading to reduced impacts and costs; include timely and real-time information and products reflecting local, regional, and State differences in drought conditions.

Directs the Under Secretary to consult with relevant federal, regional, State, tribal and local agencies, institutions, and the private sector in the development of NIDIS. Requires each federal agency to cooperate with the Under Secretary as appropriate in carrying out the Act.

Section 4. Authorization of Appropriations.

Authorizes $12 million for FY07, $14 million for FY08, $16 million for each of FY09 and FY10, and $18 million for each of FY11 and FY12.

COMMITTEE ON SCIENCE

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS
May 4, 2006

AMENDMENT ROSTER

H.R. 5136, the National Integrated Drought Information System Act of 2006

No.	Sponsor	Description	Results
1	Ehlers	Manager's En Bloc Amendment	Adopted by voice vote.

AMENDMENTS TO H.R. 5136
OFFERED BY MR. EHLERS OF MICHIGAN

Page 3, lines 6 though 8, strike "assessments of drought, including assessments of the severity of drought and drought forecasts" and insert "drought forecasts and assessments of drought, including assessments of the severity of drought conditions and impacts".

Page 3, line 23, strike "and".

Page 4, line 3, strike the period and insert "; and".

Page 4, after line 3, add the following new paragraph:

1 (3) build upon existing forecasting and assess-
2 ment programs and partnerships.

XXI. PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.R. 5136, NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM ACT OF 2006

WEDNESDAY, JUNE 7, 2006

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 2:39 p.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

Chairman BOEHLERT. I want to welcome everyone here for this markup on three important and bipartisan bills. The Committee on Science will come to order, as I started to say.

Pursuant to notice, the Committee on Science meets to consider H.R. 5136, the *National Integrated Drought Information System Act of 2006;* H.R. 5358, the *Science and Mathematics Education for Competitiveness Act;* and H.R. 5356, the *Early Career Research Act.*

I ask unanimous consent for the authority to recess the Committee at any point during consideration of these matters, and without objection, it is so ordered.

We will now proceed with the markup beginning with opening statements. I will go first, followed by my distinguished colleague and partner in this venture, Mr. Gordon.

I am going to make all my general comments on today's bills now, and not speak on the bills later on. Since we have to squeeze in a lot of business this afternoon between Floor votes, and according to the report from the Floor, we can expect a series of votes some time in the 4:00 to 4:15 timeframe.

As usual with this committee, these bills reflect a lot of bipartisan work to solve real problems in practical ways.

Our first bill today will be a measure to improve drought forecasting and monitoring, introduced by Mr. Hall. I appreciate Mr. Hall bringing this matter to our attention.

Drought may seem like something that is easy to detect, but hard to do anything about; but that turns out to be wrong on both counts. It is tricky to figure out when a drought is developing, but if one knows, one can take many steps to alter water usage to mitigate drought's often severe economic consequences. So we need to pay more attention to this costly phenomenon, and Mr. Hall's bill, building on existing federal efforts, will enable us to improve drought forecasting and monitoring, which will save billions, with a "B," billions of dollars. So, I expect this bill to move smoothly

today, and on the House Floor. We will have one manager's amendment today, to reduce the authorization levels, to make that progress to the Floor a little easier.

The other two bills we will take up today are the Committee's long-awaited innovation package.

Our goal here is to take action on the recommendations of the National Academy of Sciences, the Council on Competitiveness, AEA, the Business Roundtable, the National Association of Manufacturers, and others, who have been calling for the U.S. to shore up its competitiveness by focusing more attention and more dollars on research and education.

These calls were really music to our ears, because we have been issuing the same entreaties ourselves on this committee for a number of years, and especially in the last couple of years, as the challenge to future U.S. competitiveness has never become clearer.

But we didn't want to answer those calls with a laundry list of new programs of dubious value, that would be unlikely to ever get funded. It might give us a lot of satisfaction and some fancy press releases, but that is not what this committee is about. We are about results. Indeed, we looked around to see what is working right now, or what has worked in the recent past, and then, we extended or expanded or built on those successful programs, and the result is a focused, bipartisan measure that should be able to move swiftly through the House.

This measure is an intelligent middle ground between those who want to create scores of new, untested, expensive programs, and those who argue that all that is necessary is to increase overall funding for basic research, and leave everything else to chance. If we are to remain competitive, then we have to bolster key programs at the National Science Foundation, especially focused on K–12 and undergraduate education, and it is the prerogative of the Congress to do that.

I want to thank Dr. Schwarz and Mr. McCaul, two active freshmen on this committee with a deep understanding of these issues, for introducing these bills.

And I want to thank Mr. Gordon and the Members on both sides of the aisle, who worked with us on developing the final versions of these bills that are in the amendments in the nature of a substitute, including Dr. Ehlers and Ms. Biggert and Mr. Calvert, Ms. Jackson Lee and Mr. Green, and Mr. Honda. You get the idea of how we operate. Fingerprints of Members on both sides of the aisle are all over these bills, and that is the way it should be.

The Schwarz bill focuses on education programs at the National Science Foundation, which runs programs that are critical to improving math and science education at all levels. The bill includes enhancing and extending the Noyce Scholarship program, one of my pet projects, to attract and better train science and math teachers. We also give renewed emphasis to the Math and Science Partnership program, now renamed the School and University Partnership Program.

And we underscore NSF's role in the sometimes neglected, but critical area of undergraduate education. We also give clear authority to the Department of Energy for education programs, and we require an inventory and an evaluation of those programs.

In Mr. McCaul's bill, we bolster research by ensuring that both NSF and DOE, we will set aside funding for young researchers, who are likely to perform the most creative and pathbreaking work. And we revive and idea from the 1980s, to try to get industry interested in these young academic researchers and in their long-term, basic research.

I would add that both of these bills, and the underlying 2002 NSF Act, direct that the programs in these bills, among other things, help bring more individuals from under-represented groups into science, math, and engineering, and that is a goal that many members of this committee have been very active in pursuing.

So, we are taking action today, as we promised when we heard from the leaders of the National Academies Gathering Storm panel last year. We are setting a realistic agenda to increase U.S. investment in research and education in carefully targeted ways.

I look forward to moving this legislation today, and to continuing efforts to see it signed into law this year. And I will continue to work with the appropriators to see that they provide the funding called for in the American Competitiveness Initiative and in these bills.

Now, it is my privilege to turn to my partner in this venture, the distinguished gentleman from Tennessee, Mr. Gordon.

[The prepared statement of Chairman Boehlert follows:]

PREPARED STATEMENT OF CHAIRMAN SHERWOOD L. BOEHLERT

I want to welcome everyone here for this markup on three important and bipartisan bills. I'm going to make all my general comments on today's bills now and not speak on the bills later, since we have to squeeze in a lot of business this afternoon between Floor votes.

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These calls were really music to our ears because we've been issuing the same entreaties ourselves for years, and especially in the last couple of years as the challenge to future U.S. competitiveness has become ever clearer.

But we didn't want to answer these calls with a laundry list of new programs of dubious value that would be unlikely to ever get funded. Instead, we looked around to see what is working right now or what has worked in the recent past, and then we extended or expanded or built on those successful programs. And the result is a focused, bipartisan measure that should be able to move swiftly through the House.

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So we're taking action today as we promised when we heard from the leaders of the National Academy's Gathering Storm panel last year. We are setting a realistic agenda to increase U.S. investment in research and education in carefully targeted ways.

I look forward to moving this legislation today, and to continuing efforts to see it signed into law this year. And I will continue to work with the appropriators to see that they provide the funding called for in the American Competitiveness Initiative and in these bills.

Mr. Gordon.

Mr. GORDON. Thank you, Mr. Chairman.

As usual, I support you in this bill. We have several Members of this committee that represent drought areas, and particularly on our side, Mr. Matheson and Mr. Udall have spent a lot of time in this. This committee can't make it rain, but we can try to provide some of the tools that will allow these communities to get ready for these long droughts.

I do reserve the right to speak to these competitiveness issues after this bill, but I want to yield the rest of my time on this particular bill to my friend, Mr. Udall.

[The prepared statement of Mr. Gordon follows:]

PREPARED STATEMENT OF REPRESENTATIVE BART GORDON

Thank you, Mr. Chairman. Like much of the legislation that comes before this committee, today I once again can agree with my Chairman.

Several of our Members represent areas of the country that are struggling with the effects of a multi-year drought, most notably Mr. Udall from Colorado and Mr. Matheson from Utah.

While this committee can't make it rain, we can provide an important tool for predicting and mitigating the impacts of drought on our economic, environmental and social systems.

I thank Mr. Hall and Mr. Udall for introducing the bill. And I also thank the Chairman and his staff for cooperating so fully with my Democratic colleagues on this important issue.

In order to give Mr. Udall the opportunity for a statement on his bill, I will simply conclude by saying that I fully support the bill and encourage my colleagues to join me and Mr. Udall in support of this legislation.

I yield the remainder of my time to the gentleman from Colorado.

Mr. UDALL. I thank the gentleman for yielding.

Mr. Chairman, if I might, I would like to ask unanimous consent to include my entire statement in the record, given the time constraints.

Chairman BOEHLERT. Without objection, so ordered.

Mr. UDALL. The gentleman from Tennessee is accurate. In the West, we have been experiencing some very severe drought conditions in the past few years. In particular, in Colorado, we have found that the reduced precipitation, in addition to high temperatures, causes extreme wildfire conditions, water restrictions, a decline in tourism, and other harmful effects.

Droughts, of course, are a part of recurring climate cycles, but that doesn't make them benign, and unlike hurricanes or other weather events, they develop really slowly, and their effects are felt over longer periods, and so, as a result, there is a danger that efforts to mitigate or reduce the damages don't begin in time.

NOAA operates the Drought Monitor, which provides national information, but at a recent ETS hearing, chaired by Mr. Ehlers and attended by the Ranking Member, Mr. Wu, we learned that there is a lot more we can do to provide regional and local data to decision-makers, and out of that hearing, it became obvious that the National Integrated Drought Information System, or NIDIS, which is authorized in the bill, would be a great enabler for farmers, water managers, and countless other users, to make smart decisions by providing necessary data and resources.

And not only will NIDIS allow for comprehensive drought monitoring and forecasting, but also, it would provide a one stop shop for drought information. And Mr. Chairman, interestingly enough, it would also provide us with important data when we have an excess of water, and we are preparing for flood conditions.

So, with that, I would like to thank the Chairman and Ranking Member for scheduling the bill. In particular, I thank my colleague, Mr. Hall, for his leadership on this issue, and the bipartisan manner in which the bill has moved forward.

So, with that, I would yield back my time.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

I'd like to thank the Chairman and Ranking Member for scheduling this bill to be marked up today.

I would also like to thank my colleague Mr. Hall for his leadership on this issue and the bipartisan manner in which this bill has moved forward.

We have several bills to get through today, so I will be brief.

As most of you know, the western portion of this country have experienced severe drought conditions in the past few years.

In my own home State of Colorado we are no stranger to drought conditions. Reduced precipitation in addition to high temperatures has caused extreme wildfire conditions, water restrictions, a decline in tourism, and many other harmful effects.

Droughts are a recurring part of climatic cycles, but that does not make them benign. And unlike hurricanes or other weather events, they develop slowly and their effects are felt over longer periods. As a result, there is a danger that efforts to mitigate or reduce the damage will not begin in time.

The direct impacts of drought include reduced crop yields and forest productivity, increased fire hazards, lower water levels, and damage to wildlife habitats.

Droughts are costly to our economy as they reduce the incomes of farmers and increase the prices of foods and agricultural materials such as timber.

NOAA currently operates the Drought Monitor which provides national information about drought conditions.

However, we learned at the recent ETS hearing that there is much more that we can do to provide regional and local data to decision-makers to prepare for drought conditions.

I believe that the National Integrated Drought Information System, or NIDIS, authorized in this bill will enable farmers, water managers, and countless other end users to make smart decisions by providing necessary data and resources.

Not only will NIDIS allow for comprehensive drought monitoring and forecasting, but also can provide a one stop shop for drought information.

While this system will be focused on drought monitoring, it can also be used for an excess of water in preparation for flooding conditions.

I believe this is a good bill and will have positive impacts on our economy and quality of life. I urge my colleagues to support this bill.

Chairman BOEHLERT. I thank the distinguished gentleman for leading us, for serving us a warm-up act.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Thank you, Mr. Chairman and Ranking Member, for bringing H.R. 5136, the *National Integrated Drought Information System Act of 2006,* before the Full Committee today.

Texas, perhaps more than any other state, has been hurt very badly by drought in recent years.

The effects of the drought in Texas have been long-lasting, mired not only by the dry weather but also in efforts to compensate our farmers for the huge financial losses they have absorbed.

Texas leads the Nation in livestock and in crop production. Texas is a major producer of cattle, sheep and lambs, hay and cotton.

The ability to monitor for drought conditions and provide early warning for drought would save Texas farmers, and the American agricultural enterprise, countless dollars. I commend Representative Hall for his leadership on this effort to integrate technology with agriculture for the betterment of all Americans.

Thank you, Mr. Chairman. I yield back.

Chairman BOEHLERT. That leads us into the consideration of H.R. 5136, the *National Integrated Drought Information System Act of 2006,* and I would recognize—I ask unanimous consent that the bill be considered as read and open to amendment at any point, and that the Members proceed with the amendments in the order of the roster. Without objection, that is so ordered.

The first amendment on the roster is an amendment offered by the gentleman from Texas, Mr. Hall. Mr. Hall, are you ready to proceed?

Mr. HALL. Yes, I have an amendment at the desk.

Chairman BOEHLERT. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 5136, offered by Mr. Hall of Texas.

Chairman BOEHLERT. Without objection, I ask unanimous consent to dispense with the reading. Without objection, so ordered.

The gentleman from Texas is recognized for five minutes, and I don't want you to expect this kind of treatment all the time, for Mr. Udall to give you such a warm welcome, as you present this bill. But he has done so, and I thank him. Now I recognize you, Mr. Hall.

Mr. HALL. Mr. Chairman, I thank you, of course, and the Committee, for quickly moving this very important bill on the drought,

and I am willing to offer some help to the gentleman from Tennessee. I can make it rain, and I can tell him how to. Spend about $12 getting your car washed.

I thank Mr. Udall and his staff for working very hard with us to advance this legislation. Droughts have, as everybody knows, a very devastating effect on local, State, and national economies, and it is clear that we need to do a better job of preparing and mitigating this disaster.

The bill that I have introduced with help from Mr. Udall, with aid from the Chairman, and support from the other side, H.R. 5136, will coordinate drought efforts between local, State, and federal entities, and provide decision-makers with the very best tools that they can get to manage their natural resources. It directs NOAA to build a national drought monitoring and forecasting system, create a drought early warning system, provide an interactive drought information delivery system, and designate mechanisms for improved interaction with the public.

I am pleased that the President's budget included funding for this new program, and I think Congress should work to get it authorized. And the manager's amendment on this bill simply makes some technical corrections, Mr. Chairman. Specifically, it changes the level of appropriations to mirror the President's budget request for the program.

And again, Mr. Chairman, I thank you and the other side for this markup. I would encourage Members to vote for this bill. I look forward to working with you and the staff to advance this legislation for a floor vote very quickly.

I yield back the balance of my time, and once again, I am grateful to you for the time allotted.

Chairman BOEHLERT. All right. We already discussed the Clerk reporting the amendment. Yeah, that is what I thought. Thank you.

Now, I want to thank Mr. Hall for his outstanding work, and I want to thank Mr. Udall for his outstanding presentation.

The Chair supports the amendment. Is there any further discussion on the amendment? If no, the vote occurs on the amendment. All in favor say aye. Those opposed, no. The yeas have it, and the amendment is agreed to.

Are there any other amendments? Hearing none, the vote is on the bill, H.R. 5136, the *National Integrated Drought Information System Act of 2006,* as amended. All those in favor say aye. Aye. Opposed, say no. In the opinion of the Chair, the ayes have it.

I recognize Mr. Gordon to offer a motion.

Mr. GORDON. Mr. Chairman, I move that the Committee favorably report H.R. 5136, as amended, to the House, with the recommendation that the bill, as amended, do pass.

Furthermore, I move that the staff be instructed to prepare the legislative report, and make necessary technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration.

Chairman BOEHLERT. The question is on the motion to report the bill, as amended, favorably. Those in favor of the motion will signify by saying aye. Aye. No, no. The ayes have it, and the bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure. I move, pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives, that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.R. 5136, as amended. Without objection, so ordered.

I want to thank all the Members for their attendance, not just today, but for their active participation in the important deliberations of this committee.

This concludes our markup.

[Whereupon, at 3:53 p.m., the Committee was adjourned.]

Appendix:

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS MARKUP MEMORANDUM, H.R. 5136, SECTION-BY-SECTION ANALYSIS, AMENDMENT ROSTER

COMMITTEE ON SCIENCE
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

May 4, 2006

MEMORANDUM

TO: Sherwood L. Boehlert, Chairman

FROM: Vernon J. Ehlers, Chairman
Subcommittee on Environment, Technology and Standards

SUBJECT: Subcommittee Markup of H.R. 5136, the National Integrated Drought Information System Act of 2006.

On May 4, 2006, the Subcommittee on Environment, Technology, and Standards considered H.R. 5136, the National Integrated Drought Information System Act of 2006, and ordered the measure reported, as amended, by a voice vote.

Attached is a copy of the measure as reported by the subcommittee, as well as a section-by-section analysis.

I look forward to working with you to bring this bill before the Committee for consideration.

Attachments (2)

H.R. 5136, AS REPORTED BY THE SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS

on May 4, 2006

Strike all after the enacting clause and insert the following:

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the ''National Integrated
3 Drought Information System Act of 2006''.

4 **SEC. 2. DEFINITIONS.**

5 In this Act:

6 (1) DROUGHT.—The term ''drought'' means a
7 deficiency in precipitation—

8 (A) that leads to a deficiency in surface or
9 subsurface water supplies (including rivers,
10 streams, wetlands, ground water, soil moisture,
11 reservoir supplies, lake levels, and snow pack);
12 and

13 (B) that causes or may cause—

14 (i) substantial economic or social im-
15 pacts; or

(ii) substantial physical damage or injury to individuals, property, or the environment.

(2) UNDER SECRETARY.—The term ''Under Secretary'' means the Under Secretary of Commerce for Oceans and Atmosphere.

SEC. 3. NIDIS PROGRAM.

(a) IN GENERAL.—The Under Secretary, through the National Weather Service and other appropriate weather and climate programs in the National Oceanic and Atmospheric Administration, shall establish a National Integrated Drought Information System.

(b) SYSTEM FUNCTIONS.—The National Integrated Drought Information System shall—

(1) provide an effective drought early warning system that—

(A) is a comprehensive system that collects and integrates information on the key indicators of drought in order to make usable, reliable, and timely drought forecasts and assessments of drought, including assessments of the severity of drought conditions and impacts;

(B) communicates drought forecasts, drought conditions, and drought impacts on an ongoing basis to—

(i) decisionmakers at the Federal, regional, State, tribal, and local levels of government;

(ii) the private sector; and

(iii) the public,

in order to engender better informed and more timely decisions thereby leading to reduced impacts and costs; and

(C) includes timely (where possible real-time) data, information, and products that reflect local, regional, and State differences in drought conditions;

(2) coordinate, and integrate as practicable, Federal research in support of a drought early warning system; and

(3) build upon existing forecasting and assessment programs and partnerships.

(c) CONSULTATION.—The Under Secretary shall consult with relevant Federal, regional, State, tribal, and local government agencies, research institutions, and the private sector in the development of the National Integrated Drought Information System.

(d) COOPERATION FROM OTHER FEDERAL AGENCIES.—Each Federal agency shall cooperate as appropriate with the Under Secretary in carrying out this Act.

SEC. 4. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to carry out this Act—

(1) $12,000,000 for fiscal year 2007;

(2) $14,000,000 for fiscal year 2008;

(3) $16,000,000 for fiscal year 2009;

(4) $16,000,000 for fiscal year 2010;

(5) $18,000,000 for fiscal year 2011; and

(6) $18,000,000 for fiscal year 2012.

SECTION-BY-SECTION ANALYSIS OF H.R. 5136,
NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM ACT

Section 1. Short Title.

National Integrated Drought Information System Act of 2006.

Section 2. Definitions.

Defines two terms: 1) "drought" means a deficiency in precipitation that leads to a deficiency in surface or subsurface water supplies and that causes (or may cause) substantial economic or social impacts or physical damage or injury to people, property, or the environment; 2) "Under Secretary" means the Under Secretary of Commerce for Oceans and Atmosphere.

Section 3. NIDIS Program.

Directs the Under Secretary to establish the National Integrated Drought Information System (NIDIS) through the National Weather Service and other appropriate programs in NOAA.

Specifies that the system shall provide an effective drought early warning system and shall coordinate and integrate federal research in support of the system. Specifies that NIDIS: be a comprehensive system that collects and integrates information on drought for usable, reliable, and timely drought assessments and forecasts; communicate forecasts, conditions and impacts to the public and private sectors, and decision-makers at all levels of government in order to aid timely, informed decisions leading to reduced impacts and costs; include timely and real-time information and products reflecting local, regional, and State differences in drought conditions; and build upon existing efforts.

Directs the Under Secretary to consult with relevant federal, regional, State, tribal and local agencies, institutions, and the private sector in the development of NIDIS. Requires each federal agency to cooperate with the Under Secretary as appropriate in carrying out the Act.

Section 4. Authorization of Appropriations.

Authorizes $12 million for FY07, $14 million for FY08, $16 million for each of FY09 and FY10, and $18 million for each of FY11 and FY12.

COMMITTEE ON SCIENCE
FULL COMMITTEE MARKUP

June 7, 2006

AMENDMENT ROSTER

HR 5136, National Integrated Drought Information System Act of 2006
--Motion to adopt the bill, as amended: agreed to by a voice vote.
--Motion to report the bill, as amended: agreed to by a voice vote.

No.	Sponsor	Description	Result
1.	Mr. Hall	Manager's Amendment—to reduce authorization levels.	--Adopted by a voice vote.

AMENDMENT TO H.R. 5136
OFFERED BY MR. HALL OF TEXAS

Page 4, lines 4 through 9, amend paragraphs (1) through (6) to read as follows:

(1) $11,000,000 for fiscal year 2007;

(2) $12,000,000 for fiscal year 2008;

(3) $13,000,000 for fiscal year 2009;

(4) $14,000,000 for fiscal year 2010;

(5) $15,000,000 for fiscal year 2011; and

(6) $16,000,000 for fiscal year 2012.