Performance Audit Report

Managing for Results
Performance Measures

Environment
Department of Natural Resources
Maryland Department of the Environment
Maryland Department of Agriculture

July 2011

OFFICE OF LEGISLATIVE AUDITS
DEPARTMENT OF LEGISLATIVE SERVICES
MARYLAND GENERAL ASSEMBLY

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DEPARTMENT OF LEGISLATIVE SERVICES
OFFICE OF LEGISLATIVE AUDITS
MARYLAND GENERAL ASSEMBLY

Karl S. Aro
Executive Director

Bruce A. Myers, CPA
Legislative Auditor

July 18, 2011

Delegate Guy J. Guzzone, Co-Chair, Joint Audit Committee
Senator James C. Rosapepe, Co-Chair, Joint Audit Committee
Members of Joint Audit Committee
Annapolis, Maryland

Ladies and Gentlemen:

We conducted a performance audit to determine the accuracy of selected Managing for Results (MFR) performance measure data reported in the Maryland fiscal year 2011 operating budget request, and/or the *Managing for Results Annual Performance Report* issued in March 2010. We also determined whether adequate control systems were in place for collecting, summarizing, and reporting the performance measure data.

As requested by the chairmen of the legislative budget committees, we are systematically auditing the results of the 62 MFR measures contained in the 2005 *Managing for Results - State Comprehensive Plan*, which was produced by the Department of Budget and Management (DBM). This audit is the seventh to be conducted on the 62 measures and focuses on the data reported for 7 of the measures contained within the Environment portion of the *State Comprehensive Plan*. The Department of Natural Resources (DNR) was responsible for reporting the results for four measures and the Maryland Department of Environment (MDE) was responsible for reporting the results for the remaining three measures. The Maryland Department of Agriculture (MDA) was responsible for collecting a portion of the data used for one measure. A list of the 62 MFR measures is contained in Exhibit 3 of this report.

As a result of our audit, we have classified each of the seven measures as either Certified, Certified with Qualification, Inaccurate, or Factors Prevented Certification, as noted in the chart on the next page. These designations are further described in Exhibit 2. The audit results for the seven measures are as follows:

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Level of Certification				
Certified	**Certified with Qualification**	**Inaccurate**	**Factors Prevented Certification**	**Performance Measures Audited (See Exhibit 1)**
-	3	-	4	7

The primary factor contributing to our inability to certify four measures was that the responsible departments did not adequately ensure that supporting data used to calculate the measures were complete, accurate, and available for our review. Other factors contributing to our inability to certify the measures were that reported results were not always consistent with the performance measure descriptions and definitions.

An executive summary of our findings can be found on page 4, and our audit scope, objectives, and methodology are explained on page 10. The responses from DNR, MDE, and MDA to this audit are included as appendices to this report. We wish to acknowledge the cooperation extended to us by DNR, MDE, and MDA during the audit.

Respectfully submitted,

Bruce A. Myers

Bruce A. Myers, CPA
Legislative Auditor

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Executive Summary

Background Information

In July 1997, the Governor implemented the Managing for Results (MFR) initiative, which is a strategic planning process used by department leaders and others to establish direction and priorities for State programs to achieve meaningful results. MFR requires State agencies to submit missions, goals, objectives, and performance measures for each program as part of the annual budget request. This information may then be considered in determining Statewide spending priorities and the allocation of resources in agency budgets. Effective July 1, 2004, the MFR process was established in State law, with the Department of Budget and Management (DBM) as the lead agency for developing a State comprehensive plan for MFR. The resultant 2005 *Managing for Results - State Comprehensive Plan* categorized MFR goals into five functional areas, referred to as pillars, which contained a total of 62 measures. Also, State law requires agencies to maintain documentation of the internal controls established to evaluate their performance measures.

As requested by the chairmen of the legislative budget committees, we are systematically auditing these 62 measures. This audit is the seventh to be conducted pursuant to this request and focuses on certain data reported by the Department of Natural Resources (DNR) and the Maryland Department of Environment (MDE) in the Maryland fiscal year 2011 operating budget request or the *Managing for Results Annual Performance Report* issued in March 2010 for seven of the nine[1] measures contained within the Environment portion of the *State Comprehensive Plan* (see Exhibit 1). Certain data reported by DNR included information gathered by the Maryland Department of Agriculture (MDA). The categories of performance certification are explained in Exhibit 2 of this report, and a list of the 62 MFR measures is contained in Exhibit 3. Exhibit 4 references the first 6 MFR audit reports issued by our Office, which collectively covered 51 measures in the Public Safety and Safer Neighborhoods, Education, Fiscal Responsibility, Health, Commerce, and Higher Education portions of the *State Comprehensive Plan*.

Conclusions

We concluded that for the seven measures, three were Certified with Qualification, and four were designated as Factors Prevented Certification. These results are further described in the Findings section of this report.

[1] Two of the Environment measures included in the 2005 *Managing for Results - State Comprehensive Plan* were not included in the *Plan* when it was reissued by DBM in November 2009. Furthermore, MDE did not report on these measures in its fiscal year 2011 budget request or *Annual Performance Report*. Consequently, these two measures were not included in this audit.

Recommendations

The following detailed recommendations are among those we made to DNR, MDE, and MDA to help strengthen the quality control processes and improve reporting for the measures we audited.

- Establish procedures to ensure that all relevant data are included in the measure calculation and that the data, including data obtained from third parties, are reasonably accurate and complete.
- Retain documentation supporting the reported measure results.
- Accurately submit reported results that are prepared in a manner that is consistent with clearly written performance measure definitions.

Findings

Certification Results				
Agency, Program Name and Budget Reference[2]	**Performance Measure (See Exhibit 1 for Definitions)**	**Results Reported**	**Level of Certification (See Exhibit 2)**	**Comments / Causes**
Department of Natural Resources Budget Book 1, Page 697	Acres of submerged aquatic vegetation	Calendar Year 2008 35,000	Factors Prevented Certification	The Department of Natural Resources (DNR) did not perform any evaluation or verification of the third-party data used to calculate the performance measure to the related source documents (aerial surveys). Consequently, there was no assurance that the data used by the third-party contractor to calculate the performance measure were complete and reliable. In addition, the result reported for calendar year 2008 was actually the result for calendar year 2007 data collected between May and October 2007. Also, DNR did not have copies of the initial source documents available for our review and testing.
Department of Natural Resources, Fisheries Service Budget Book 1, Page 772	Dredge survey index of stock size (crabs) – actual count of crabs per dredge tow[3]	Fiscal Year 2009 43	Factors Prevented Certification	DNR – Fisheries Service (FS) did not evaluate or verify the data received from a third party in Virginia, which provided about one-half of the data used to calculate the measure. With respect to Maryland's portion of the data, internal controls and documentation were not sufficient to establish that the scientific process for determining the crab population was carried out as intended. Specifically, FS did not have a documented process in place to ensure the data results recorded on source documents (field notebooks) were reasonably accurate for the surveys it conducted. Also, FS did not document independent verifications of the survey data results recorded in the computer system database to ensure the accuracy of the data used to calculate the performance measure. Consequently, there was a lack of assurance that the data used to calculate the performance measure were complete and reliable. FS did not report the performance measure using the basis described in the measure's definition (see Exhibit 1 on page 12 for the definition). The measure was reported as the "actual count of crabs per dredge tow;" however, it was calculated as the count of crabs per 1,000 square meters. It takes approximately 5 dredge tows to cover 1,000 square meters

[2] Reference cited is the Maryland fiscal year 2011 operating budget request or March 2010 *Managing for Results Annual Performance Report*, as indicated.

[3] The measure reviewed replaced the "blue crab landings (3 year average)" performance measure that appeared in the Department of Budget and Management's (DBM) original *Managing for Results State Comprehensive Plan* issued in January 2005.

Certification Results				
Agency, Program Name and Budget Reference[2]	**Performance Measure (See Exhibit 1 for Definitions)**	**Results Reported**	**Level of Certification (See Exhibit 2)**	**Comments / Causes**
Department of Natural Resources, Fisheries Service Budget Book 1, Page 772	Oyster biomass index[4] (1994 base=1)	Fiscal Year 2009 0.8	Factors Prevented Certification	DNR - FS did not have a documented process in place to ensure the oyster biomass data results recorded on the related source documents (sampling sheets) were accurate. Also, FS did not perform any independent verification of the oyster biomass data entered into their database used to calculate the performance measure to the related source documents. Consequently, there was a lack of assurance that the data used to calculate the performance measure were accurate and reliable. The measure results were not consistently reported. FS reported two different numbers in the 2011 operating budget request; FS reported 0.9 at the department level (which agreed with the calculation result using its database information) but reported 0.8 at the program level. The measure was also reported as 0.8 in the Department of Budget and Management's (DBM) 2010 *Managing for Results Annual Performance Report.*
Department of Natural Resources Budget Book 1, Page 697	Estimated nitrogen load to the Chesapeake Bay from Maryland (in million of pounds)	Fiscal Year 2009 53.71	Certified with Qualification	Independent verifications were not performed to source documents for the data entered into databases maintained by DNR, the Maryland Department of Environment (MDE), and the Maryland Department of Agriculture (MDA). The U.S. Environmental Protection Agency used this data to calculate the performance measure result. Nevertheless, we were able to determine that the reported result was reasonably accurate.

[2] Reference cited is the Maryland fiscal year 2011 operating budget request or March 2010 *Managing for Results Annual Performance Report*, as indicated.

[4] The measure reviewed replaced the "oyster landings (3 year average)" performance measure that appeared in the original DBM *Managing for Results State Comprehensive Plan* issued in January 2005.

Certification Results				
Agency, Program Name and Budget Reference[2]	**Performance Measure (See Exhibit 1 for Definitions)**	**Results Reported**	**Level of Certification (See Exhibit 2)**	**Comments / Causes**
Maryland Department of Environment, Science Services Administration *Managing for Results Annual Performance Report* Page 49	Waters impaired by nutrients per the 303 (d) listing cycle[5]	Calendar Year 2008 107	Certified with Qualification	MDE - Science Services Administration did not independently verify the data received from DNR used to calculate the performance measure. Also, DNR did not perform independent verifications of changes to their computer system database used to compile data given to MDE to calculate the measure. Nevertheless, we were able to determine that the reported result was reasonably accurate.
Maryland Department of Environment, Water Management Administration Budget Book 3, Page 604	Percent of Marylanders served by public water systems in significant compliance with rules adopted as of 2009[6]	Fiscal Year 2009 87%	Factors Prevented Certification	MDE - Water Management Administration (WMA) did not maintain the data that were used to calculate the measure. Consequently, we could not determine if the measure was calculated accurately.

[2] Reference cited is the Maryland fiscal year 2011 operating budget request or the March 2010 *Managing for Results Annual Performance Report*, as indicated.

[5] The measure reviewed replaced the "watersheds impaired by nutrients" performance measure that appeared in the original DBM *Managing for Results State Comprehensive Plan* issued in January 2005.

[6] The measure reviewed replaced the "percent of Marylanders served by public water systems in significant compliance with rules adopted as of 2002" performance measure that appeared in the original DBM *Managing for Results State Comprehensive Plan* issued in January 2005.

Certification Results				
Agency, Program Name and Budget Reference[2]	**Performance Measure (See Exhibit 1 for Definitions)**	**Results Reported**	**Level of Certification (See Exhibit 2)**	**Comments / Causes**
Maryland Department of Environment, Air and Radiation Management Administration *Managing for Results Annual Performance Report* Page 51	Three-year average of days the eight-hour ozone standard was exceeded[7]	Calendar Year 2009 32.3	Certified with Qualification	MDE - Air and Radiation Management Administration did not perform independent verifications of decisions to exclude certain ozone concentration readings (for example, readings that appeared to be erroneous) obtained from monitoring stations. Furthermore, MDE did not perform independent reconciliations to ensure the accuracy of ozone concentration data transferred from its system to the national air quality database (maintained by the U.S. Environmental Protection Agency), which ultimately was the source of the reported measure. Nevertheless, we were able to determine that the reported result was reasonably accurate.

[2] Reference cited is the Maryland fiscal year 2011 operating budget request or the March 2010 *Managing for Results Annual Performance Report*, as indicated.

[7] The measure reviewed replaced the "three-year average of days the one-hour ozone standard was exceeded" performance measure that appeared in the original DBM *Managing for Results State Comprehensive Plan* issued in January 2005.

Scope, Objectives, and Methodology

Scope

Under the authority of the State Government Article, Section 2-1221 of the Annotated Code of Maryland, we conducted an audit of selected performance measure results reported in the Maryland fiscal year 2011 operating budget request or measure results that were reported in the *Managing for Results Annual Performance Report* dated March 2010. The audit was performed in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

As requested by the chairmen of the legislative budget committees, we are systematically auditing the performance measures from the 2005 *Managing for Results - State Comprehensive Plan* produced by the Department of Budget and Management (DBM). This Plan included 62 performance measures categorized into five functional areas referred to as pillars. This audit is the seventh to be conducted pursuant to this request and focuses on the 7 performance measures from the Environment functional area as reported by DBM in the 2005 *State Comprehensive Plan*.[8]

Objectives

The objectives of our audit were (1) to determine whether the most recent actual measurement results for the selected performance measures were accurately reported in the Maryland fiscal year 2011 operating budget request (or the *Managing for Results Annual Performance Report* dated March 2010) and (2) to determine whether adequate control systems existed over the collection and reporting of the data related to the measurement results. Our performance audit did not include an assessment of whether the performance measures reviewed were consistent with the goals and objectives of the related programs, or were meaningful indicators of program performance.

[8] DBM reissued the *State Comprehensive Plan* in November 2009 with 98 performance measures categorized into six functional areas. Certain of the performance measures from the Environment area of the original January 2005 *Plan* were replaced by similar measures in the reissued *Plan.* We audited the replacement measures to the extent they were being reported on by the State agencies.

Methodology

To accomplish our objectives, we interviewed Department of Natural Resources (DNR), Maryland Department of Environment (MDE), and Maryland Department of Agriculture (MDA) personnel responsible for collecting and reporting the measure data, reviewed performance measure calculations for accuracy, reviewed the data collected and reported for the performance measures, and determined whether the calculations and data were consistent with the definitions of the performance measures as noted in Exhibit 1. We also analyzed DNR's, MDE's and MDA's performance measurement data collection and reporting activities to evaluate whether proper controls existed to ensure data integrity.

We developed a system to categorize the results of our audit of performance measures. The four categories represent varying levels of certification of the accuracy of the performance reported. The categories of performance certification are defined in Exhibit 2. If, during the course of our audit of a measure, we found circumstances that would require us to conclude that factors prevented certification of the measure, we did not perform additional audit work that may have disclosed other factors that might have adversely impacted the reported results.

Our fieldwork was conducted on site at DNR, MDE, and MDA during the period from April 2010 to January 2011. The responses from DNR, MDE, and MDA to our findings and recommendations appear as appendices in this report. As prescribed in State Government Article, Section 2-1224 of the Annotated Code of Maryland, we will advise DNR and MDE regarding the results of our review of their responses.

Exhibit 1
Definitions of the Environment Performance Measures Audited

Performance Measure	Definition[1]
Acres of submerged aquatic vegetation	This measure is the annual (calendar year) accounting of the total acreage of aquatic grasses in the Maryland portion of the Chesapeake Bay and its tidal tributaries. Aquatic grasses are the dense growths ("beds") of vascular aquatic plants growing in shallow areas of the Bay that are rooted or secured to the sediments and grow toward the surface. The acreage of aquatic grasses is the surface area of shallow bottom waters that are covered by measurable densities of one or more species of aquatic grasses as detected by aerial photographs.
Dredge survey index of stock size (crabs) – actual count of crabs per dredge tow	The performance measure is derived from the annual Baywide winter dredge survey conducted by Maryland Department of Natural Resources and by a third party in Virginia. Data are collected annually from December through March from the mouth of the Chesapeake Bay, north to Pooles Island. The index of stock size is the average number of crabs caught in each dredge tow.
Oyster biomass index (1994 base=1)	The biomass of an oyster is its living tissue not including the shells. As the Chesapeake Bay's oyster population improves or declines, so does the biomass. The Department of Natural Resources samples selected oyster bars each year, assesses the total amount of oyster biomass (grams per bushel) in the samples, and generates an index of Maryland's oyster biomass based on this data. The index tracks the status of the population based on the 1994 oyster benchmark set by the Environmental Protection Agency's Chesapeake Bay Program.

[1] The definitions are substantially derived from those provided to the Department of Budget and Management (DBM) in annual State agencies' Managing for Results budget submissions and DBM's *Managing for Results Annual Performance Report.* Additional information, such as data sources, was included in certain definitions in this exhibit for informational purposes. Also, certain definitions were shortened to enhance readability.

Exhibit 1
Definitions of the Environment Performance Measures Audited

Performance Measure	Definition
Estimated nitrogen load to the Chesapeake Bay from Maryland (in millions of pounds)	The annual estimation of the amount (measured in millions of pounds) of nitrogen delivered to the Chesapeake Bay from Maryland. High nitrogen loads can facilitate the growth of algae and can result in very low dissolved oxygen concentrations in the deeper areas of the Bay, which affect the survival of other aquatic organisms (that is, fish, crabs, and oysters). Therefore, elevated nitrogen loads degrade water quality and are targeted for load reductions. Pollutants delivered via air, water, and land (fertilizers, human and animal waste, and power plant emissions) cause excessive nitrogen in the Bay. Maryland's Bay agencies (DNR, MDE, and MDA) adopted 34 specific and accelerated actions (related to factors such as cover crops, livestock waste structures, and stormwater runoff) that impact the level of nitrogen in the Bay. The U.S. Environmental Protection Agency - Chesapeake Bay Program uses the data, collected and transmitted by Maryland's Bay agencies, with computer simulations to estimate the amount of nitrogen delivered to the Chesapeake Bay based on the control efforts implemented.
Waters impaired by nutrients per 303 (d) listing cycle	The number of watersheds on Part 4a (impaired watersheds with a Total Maximum Daily Load - TMDL - completed) and Part 5 (impaired watersheds with a TMDL needed) of the 303 (d) list of impaired waters. Inclusion of a watershed on the Federal Water Pollution Control Act Section 303(d) listing indicates a violation of the water quality standards. The TMDL is the maximum amount of a pollutant that can enter a water body and still allow the water quality standard to be met.

Exhibit 1
Definitions of the Environment Performance Measures Audited

Performance Measure	Definition
Percent of Marylanders served by public water systems in significant compliance with all rules adopted as of 2009	The total population served by all active community water systems in Maryland in compliance with the drinking water standards defined by the Code of Maryland Regulations 26.04.01 divided by the current state population served by a community water system.
Three-year average of days the eight-hour ozone standard was exceeded	This measure is the three-year average of the number of days within a given calendar year in which the federal ozone standard is exceeded. The total number of days is reported to the Environmental Protection Agency on an annual (calendar year) basis where it is entered into a database and becomes the basis for the number of days for which the ozone standard was exceeded.

Exhibit 2
Categories of Performance Certification

Category	Definition
Certified	Reported performance was reasonably accurate.
Certified with Qualification	Reported performance was reasonably accurate even though minor deficiencies were noted with the supporting documentation, controls were not sufficient, or the methodology used to calculate reported performance was not consistent with the measure definition.
Inaccurate	Reported performance differed significantly from actual performance; the calculation process was wrong, such as excluding data relevant to the calculation; or, as reported, the measure was misleading, such as failing to disclose the measure as a rate when applicable.
Factors Prevented Certification	Reported performance could not be verified, as documentation was unavailable, controls were not adequate to ensure the accuracy of the results, or results were not presented in a manner consistent with the performance measure description.

Exhibit 3
Managing for Results – State Comprehensive Plan
List of 62 Performance Measures in Plan

Performance Area / Goal / MFR Measure	
Public Safety and Safer Neighborhoods	
Keeping Maryland communities safe – measured by	
1	Firearm homicide rate per 100,000 (calendar year)
2	Recidivism: Percent of offenders returned to Department of Public Safety and Correctional Services supervision for a new offense within one year of their release from the Division of Correction - all releases
3	Traffic fatality rate per 100 million miles traveled (calendar year)
Maintaining necessary security standards in correctional institutions – measured by	
4	Number of inmates who escape from all Division of Correction Facilities, Patuxent Institution, and Division of Pretrial Detention and Services facilities (in aggregate)
5	Total number of inmates who walk off from Division of Correction minimum security settings, prerelease or alternative confinement settings (in aggregate)
Providing effective rehabilitation and treatment services to offenders or substance abusers – measured by	
6	Percent of Proactive Community Supervision cases closed where the offender had satisfactorily completed substance abuse treatment programs
Preventing youth violence, alcohol and substance abuse – measured by	
7	Violent offense arrest rate for youths between 15 and 17 years of age (per 100,000 children per calendar year)
8	Recidivism: Percent of youth re-adjudicated or reconvicted within 1 year after release
9	Percent of 12th grade public school children who report using alcohol within the last 30 days
10	Percent of 10th grade public school children who report using heroin within the last 30 days
Protecting the well being of children – measured by	
11	Rate of injury-related deaths due to accidents to children and youth between 0 and 19 years of age (per 100,000 children per calendar year)
12	Percent of children with recurrence of maltreatment within six months of first occurrence
13	Statewide percent of current child support paid (Includes cases for persons who receive public assistance, and for other persons who apply for child support services from the Department of Human Resources)

Exhibit 3
Managing for Results – State Comprehensive Plan
List of 62 Performance Measures in Plan

Performance Area	
Goal	
MFR Measure	
Education	
Children will enter school ready to learn – measured by	
1	Percent of students entering Kindergarten demonstrating Full Readiness on the Work Sampling System Kindergarten Assessment
Children will be successful in school – measured by	
2	Percent of students scoring proficient or better by grade and content area • Reading – Grade 3 – Total all groups • Reading – Grade 8 – Total all groups • Reading – Grade 10 – Total all groups • Mathematics – Grade 3 – Total all groups • Mathematics – Grade 8 – Total all groups • Algebra – Total all groups
Children will complete school – measured by	
3	High School Graduation Rate
4	Percent of children in grades 9 through 12 who drop out of school in an academic year
Schools will promote high levels of learning – measured by	
5	Percent of schools demonstrating Adequate Yearly Progress in reading – State totals
6	Percent of schools demonstrating Adequate Yearly Progress in mathematics – State totals
Higher Education	
Promoting access and academic success in postsecondary education – measured by	
1	Six year graduation rate of first-time, full-time students at Maryland public four-year colleges and universities (all groups)
2	Percent of bachelor's degrees awarded to racial/ethnic minorities at public and private Maryland colleges and universities
3	Number of community college students who transfer to a Maryland public four-year campus
Producing an educated and skilled workforce including addressing the State's critical workforce and healthcare needs – measured by	
4	Number of graduates in teaching from Maryland's public and private higher educational institutions
5	Percent of teacher candidates from Maryland public and private higher educational institutions who pass Praxis II
6	Number of graduates in nursing from Maryland public and private higher educational institutions

Exhibit 3
Managing for Results – State Comprehensive Plan
List of 62 Performance Measures in Plan

Performance Area	
Goal	
MFR Measure	
Health	
Promoting health and well being: Babies Born healthy – measured by	
1	Infant mortality rate for all races (per 1,000 live births)
2	Rate of live births to adolescents between 15 and 19 years of age (per 1,000 women)
Promoting health and well being: Healthy children, adolescents, and adults – measured by	
3	Percent of Maryland children fully immunized (by 24 months)
4	Number of children under 6 years of age with elevated blood lead levels (≥10ug/dl)
5	Cumulative percent change from the calendar year 2000 baseline for underage high school students smoking cigarettes
6	Overall cancer mortality rate per 100,000 persons (age adjusted to 2000 U.S. Standard Population)
7	Percent change in number of new HIV cases from calendar year 2007 baseline
8	Rate of primary/secondary syphilis incidence (cases per 100,000 population)
9	Number of reported cases of vaccine preventable communicable diseases including hepatitis A, measles, mumps, pertussis
Promoting health and well being: Services to the disability community – measured by	
10	Number of people with disabilities who achieved successful employment through assistance by the Department of Education's Disability Rehabilitation Services rehabilitation programs
11	Percent of Developmental Disabilities Administration Community Service respondents of the "Ask ME!" survey who expressed satisfaction with physical well-being, personal development, and self-determination (reported separately)
Promoting health and well being: Substance abuse treatment – measured by	
12	Percent of substance use decrease during substance abuse treatment
Promoting health and well being: Mental health services – measured by	
13	Percent of adults who report mental health services have allowed them to deal more effectively with daily problems
Environment	
Restoring the health of the Chesapeake Bay and its living resources – measured by	
1	Acres of submerged aquatic vegetation
2	Blue crab landings (3 year average)[1]
3	Oyster landings (3 year average) [1]
4	Estimated nitrogen load to the Chesapeake Bay from Maryland (in million pounds)
Improving and protecting water quality and ensuring safe drinking water – measured by	
5	Watersheds impaired by nutrients [1]
6	Percent of Marylanders served by public water systems in significant compliance with all rules adopted as of 2002[1]

[1] Measure replaced in the *Comprehensive Plan* reissued in November 2009.

Exhibit 3
Managing for Results – State Comprehensive Plan
List of 62 Performance Measures in Plan

Performance Area	
Goal	
MFR Measure	
Ensuring clean air – measured by	
7	Three-year average of days the one-hour ozone standard was exceeded[1]
Restoring contaminated industrial sites to productive use – measured by	
8	Number of acres of property in the Voluntary Clean-up Program completed and a No Further Requirements Determination or a Certificate of Completion issued [2]
Reducing hazardous waste and hazardous materials in the environment – measured by	
9	Number of remedial actions at all State Superfund sites that are completed[2]
Commerce	
Helping businesses to grow and create jobs – measured by	
1	Percent change in Maryland employment from the 2001 baseline (12 month average)
2	Rate that adult employment trainees enter employment
3	Maryland Port Administration total general cargo tonnage (thousands)
4	Estimated direct expenditures from film, television, and other production activities in Maryland [2]
5	Annual Baltimore Washington International Airport passenger growth rate
Improving the State's transportation infrastructure – measured by	
6	Percent of State system roadway mileage with acceptable ride quality
7	Percent of bridges on the State portion of the National Highway System that will allow all legally loaded vehicles to safely traverse
8	Total ridership for bus and rail transit (in thousands)
9	System Preservation Funding Levels in the Consolidated Transportation Program (in millions) [2]
Invigorating communities – measured by	
10	Home ownership
11	Annual percent change in Maryland per capita personal income
12	Total acres enrolled in agricultural preservation districts
Making the most of Maryland's history and culture – measured by	
13	Value of rehabilitation expenditures approved for the State Rehabilitation Tax Credit for restoration and preservation of historic properties

[1] Measure replaced in the *Comprehensive Plan* reissued in November 2009.

[2] Measure not audited - not included in the *Comprehensive Plan* reissued in November 2009

Exhibit 3
Managing for Results – State Comprehensive Plan
List of 62 Performance Measures in Plan

Fiscal Responsibility	
Effective resource management – measured by	
1	Number of fiscal years closed with a positive General Fund balance
2	Maintaining a triple A bond rating from all three nationally recognized bond rating agencies for each issuance of State General Obligation Bonds

Exhibit 4
Managing for Results Audit Reports
Previously Issued by the Office of Legislative Audits
Pertaining to the 62 Measures

Report	Report Date	Number of Measures Audited
Public Safety and Safer Neighborhoods	March 19, 2009	13
Education	October 2, 2009	6
Fiscal Responsibility	March 31, 2010	2
Health	February 4, 2011	13
Commerce	April 18, 2011	11[1]
Higher Education	April 21, 2011	6

[1] Two of the Commerce measures included in the 2005 *Managing for Results – State Comprehensive Plan* (as detailed in Exhibit 3) were not included in the *Plan* when it was reissued by DBM in November 2009. Furthermore, DBM had not reported on these two measures since March 2008 (which reported fiscal year 2007 actual results). Consequently, these two measures were not audited.

APPENDIX

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Joseph P. Gill, Deputy Secretary

June 14, 2011

Mr. Bruce A. Myers, Legislative Auditor
Office of Legislative Audits
Legislative Services Building
90 State Circle
Annapolis, MD 21401

Dear Mr. Myers,

Thank you for your May 26, 2011 letter transmitting your draft performance report on Managing for Results – Performance Measures - Environment. Please also accept my thanks for the level of professionalism with which your staff conducted the audit and for staff's willingness to take into consideration the additional information we presented, including contacting Dr. Thomas Miller, Professor at the University of Maryland Center for Environmental Science. While our response is attached, I write separately for three reasons.

First, the primary difference for our disagreement on "controls" and other measures rests on the protocols used to arrive at findings. In contrast to application of accounting standards used by OLA, natural resource scientists have their own set of generally accepted standards for quality control, quality assurance and peer review. Dr. Miller's recent email communication to DNR fisheries scientist Lynn Fegley in response to initial OLA comments on the winter crab dredge survey illustrates this difference. The OLA auditors were concerned about the possibility of individual errors at check stations. In response, Dr. Miller wrote that all fisheries programs

> . . . rely on the fact that we are not interested in the catch at an individual station or the length at an individual station – what we are interested in is the catch at the population level and the size distribution at the population level. To achieve these goals, fisheries surveys use sophisticated statistical designs, such as the stratified random sampling used in the winter dredge survey. These survey[s] work to minimize the statistical variance among individual samples to yield the most precise estimate of the population abundance or population size structure. Viewed in this light, the winter dredge survey is more precise than any other fisheries survey of which I am aware. Indeed in a recent review of the latest stock assessment for blue crab which I led, the international panel of reviewers from Australia, the UK and Chile, all commented on what an outstanding resource the winter dredge survey is for providing population level estimates.

It is in this context that we respectfully disagree with your comments on the alleged lack of "any evaluation or verification" of the submerged aquatic vegetation data (SAV) received from VIMS. VIMS is chartered by the Commonwealth of Virginia to provide research, education and advisory

service to government, citizens and industry. The data collection methodology it uses has been independently peer-reviewed, published and verified by the scientific community. In addition, under the auspices of the Chesapeake Bay Program's SAV Workgroup, DNR and other management agencies (the National Oceanic Atmospheric Administration, the Environmental Protection Agency, and United States Geological Survey) and academic institutions (University of Maryland, St. Mary's) annually review the VIMS data to the verify the presence of SAV and species composition in given areas.

Second and for the same reason, DNR respectfully disagrees that it was required to evaluate or verify the Virginia oyster data we received from VIMS – the methods of data collection are standardized. However, we will work with scientists at VIMS to examine the potential for creating an annual and documented data verification system.

Finally, for blue crabs and oysters, the Department has agreed to document the processes it uses to ensure that the data results recorded on field notebooks and sampling sheets are reasonably accurate, and to document independent verifications of data results recorded in our computer system database. We have already addressed certain minor errors in reporting procedures.

Thank you for the opportunity to respond to your draft report.

Sincerely,

John R. Griffin
Secretary

Attachment

Auditor's Comment: The Department of Natural Resources (DNR) has disagreed with certain aspects of our findings pertaining to controls, in general, and to its data collection methodologies associated with the measures for crabs, submerged aquatic vegetation and oysters. Specifically, DNR indicates that natural resource scientists have their own set of generally accepted standards for quality control, quality assurance and peer review, and that the data collection methodologies are accepted practices in the scientific community. Based on our review of the processes, there was a lack of documentation to demonstrate that the data collection methodology had been carried out as intended and the appropriate controls were in effect to help ensure the accuracy of the data collected. Our concerns about the issues as they relate to the specific performance measures have been footnoted in DNR's detail response to our findings for those measures.

Performance Audit Responses
Department of Natural Resources

Performance Measure: **Acres of submerged aquatic vegetation (SAV)-Calendar Year 2008**
Level of Certification: **Factors Prevented Certification**

Auditor's Comments/Causes

The Department of Natural Resources (DNR) did not perform any evaluation or verification of the third-party data used to calculate the performance measure to the related source documents (aerial surveys). Consequently, there was no assurance that the data used by the third-party contractor to calculate the performance measure were complete and reliable. In addition, the result reported for calendar year 2008 was actually the result for calendar year 2007 data collected between May and October 2007. Also, DNR did not have copies of the initial source documents available for our review and testing.

Department's Response

DNR respectfully disagrees that it did not perform any "evaluation or verification" of the SAV data received from a "third party contractor" to calculate this performance measure. The "third party contractor" is the Virginia Institute of Marine Sciences (VIMS) – an Institute chartered by the Commonwealth of Virginia in 1940 with a "legal mandate to provide research, education and advisory service to government, citizens and industry."[1] Its SAV data collection methodology has been independently peer-reviewed, published and verified by the scientific community. Finally, under the auspices of the Chesapeake Bay Program's SAV Workgroup, DNR and other management agencies (the National Oceanic Atmospheric Administration, the Environmental Protection Agency, and United States Geological Survey) and academic institutions (University of Maryland, St. Mary's) annually review the VIMS data to the verify the presence of SAV and species composition in a given area. In 2010, DNR's diver-based estimate of outer and inner edges of a specific bed was within 2 meters of the beds mapped by VIMS.[A]

DNR concurs that the result reported for calendar year 2008 was actually the result for calendar year 2007 data collected between May and October 2007. The acquisition and analysis of the SAV data takes a full year to perform and the results in 2008 were reported in the calendar year following

[1] http://www.vims.edu/about/vims_at_a_glance/index.php

[A] **Auditor's Comment:** DNR could not provide sufficient evidence to demonstrate the described methodologies had actually been implemented and that the related data collection and recording methodologies had been adequately controlled, or independently reviewed and validated by DNR or VIMS.

acquisition of the photography in 2007. DNR now reports in the year in which it acquires the photography.

DNR has in-house or on line all source documents related to SAV surveys and made these available to the auditors. We do not have copies of the original aerial SAV photographs, but these are digitized by VIMS and are available on line.[B]

Performance Measure: **Dredge Survey Index Stock Size (Crabs) – Fiscal Year 2009**
Level of Certification: **Factors Prevented Certification**

Auditor's Comments/Causes

DNR – Fisheries Service (FS) did not evaluate or verify the data received from a third party in Virginia, which provided about one-half of the data used to calculate the measure. With respect to Maryland's portion of the data, internal controls and documentation were not sufficient to establish that the scientific process for determining the crab population was carried out as intended. Specifically, FS did not have a documented process in place to ensure the data results recorded on source documents (field notebooks) were reasonably accurate for the surveys it conducted. Also, FS did not document independent verifications of the survey data results recorded in the computer system database to ensure the accuracy of the data used to calculate the performance measure. Consequently, there was a lack of assurance that the data used to calculate the performance measure were complete and reliable.

FS did not report the performance measure using the basis described in the measure's definition (see Exhibit 1 on page 12 for the definition). The measure was reported as the "actual count of crabs per dredge tow;" however, it was calculated as the count of crabs per 1,000 square meters. It takes approximately 5 dredge tows to cover 1,000 square meters

Department's Response

The blue crab data received from a "third party in Virginia" came from the Virginia Institute of Marine Sciences – see comments above. While DNR respectfully disagrees that it was required to evaluate or verify the data received from VIMS – the methods of data collection are standardized – we will work

[B] **Auditor's Comment:** At the time of our audit, there was no indication that source documents were available, nor was there any evidence that DNR had undertaken any verification process of the actual data used to calculate the measure.

with scientists at VIMS to examine the potential for creating an annual and documented data verification system.[C]

DNR agrees to document the process it uses to ensure the data results recorded on its field notebooks are reasonably accurate for the surveys it conducts starting with the 2011 crab dredge data, and to document independent verifications of survey data results recorded in the computer system database. DNR also agrees that the blue crab density is expressed as "crabs per 1,000 square meters," not "number of crabs per tow" as inadvertently stated in the budget book, although the error did not impact the accuracy of the reported number.

Performance Measure: **Oyster Biomass Index – Fiscal Year 2009**
Level of Certification: **Factors Prevented Certification**

Comments/Causes

DNR - FS did not have a documented process in place to ensure the oyster biomass data results recorded on the related source documents (sampling sheets) were accurate. Also, FS did not perform any independent verification of the oyster biomass data entered into their database used to calculate the performance measure to the related source documents. Consequently, there was a lack of assurance that the data used to calculate the performance measure were accurate and reliable.

The measure results were not consistently reported. FS reported two different numbers in the 2011 operating budget request; FS reported 0.9 at the department level (which agreed with the calculation result using its database information) but reported 0.8 at the program level. The measure was also reported as 0.8 in the Department of Budget and Management's (DBM) 2010 Managing for Results Annual Performance Report.

Department's Response

DNR agrees to have a documented process in place to ensure that oyster biomass data results recorded on the sampling sheets are accurate, and to document independent verifications of the

[C] **Auditor's Comment:** The need to evaluate or verify data obtained from third parties is an essential control procedure to ensure the data used by DNR for this measure are reliable. The requirement to establish controls over reported MFR measures is established by Maryland law as stated on page 4 of the audit report. The law specifically states that each agency "shall maintain documentation of the internal controls established to evaluate performance measures that shall be subject to review by the State, including the Office of Legislative Audits." Nevertheless, DNR has indicated that, for the future, it will examine the potential for creating an annual documented data verification system.

oyster biomass data entered into its database. DNR also agrees to correct the inadvertent inconsistencies in reporting the oyster biomass performance measure.

Performance Measure:	**Estimated nitrogen load to the Chesapeake Bay from Maryland (in millions of pounds) – FY 09**
Level of Certification:	**Certification with Qualifications**

Auditor's Comments/Causes

Independent verifications were not performed to source documents for the data entered into databases maintained by DNR, the Maryland Department of Environment (MDE), and the Maryland Department of Agriculture (MDA). The U.S. Environmental Protection Agency used this data to calculate the performance measure result. Nevertheless, we were able to determine that the reported result was reasonably accurate.

Department's Responses

It is not feasible or cost-effective for the Department to independently verify and document nutrient loads used to calculate USEPA's performance measure result. As this performance measure is not appropriate for DNR, DNR will eliminate it although as noted, the auditors determined that the reported result was reasonably accurate.

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT

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Deputy Secretary

July 12, 2011

Mr. Bruce A. Myers, CPA
Legislative Auditor
Office of Legislative Audits
Room 1202
301 W. Preston Street
Baltimore, Maryland 21201

Dear Mr. Myers:

Enclosed please find the Maryland Department of Environment's response to the draft Managing for Results Performance Measures audit report dated May 2011. Additionally, an electronic version of this document has been sent to your office via e-mail (file name: MDEMFRResponseJuly2011.doc)

Thank you to you and your staff for the time spent in helping our Department review our business practices and the constructive recommendations made as a result of the audit. MDE will take the necessary steps to resolve the issues contained in the report. These efforts reflect of our strong commitment to strive for excellence and safeguard the environment for the citizens of Maryland.

If you or your staff have any questions or need additional information, please contact me at 410-537-3084 or Ms. Donna Dancy, the Department's Director of Internal Audit Services, at 410-537-3429.

Sincerely,

Robert M. Summers, Ph.D.
Secretary

Enclosure

cc: Delegate Guy J. Guzzone, Co-Chair, Joint Audit Committee
Senator James Rosapepe, Co-Chair, Joint Audit Committee
Karl S. Aro, Executive Director, Department of Legislative Services
Kathy Kinsey, Deputy Secretary, MDE
Donna A. Dancy, Director, Internal Audit Services

Managing for Results
Performance Measures

Department of Environment

July 2011

Performance Measure:

Estimated Nitrogen Load to the Chesapeake Bay from Marylanders (in millions of pounds)
(Budget Book 1, Page 697

Fiscal Year 2009 Actual Results Reported: 53.71

Level of Certification: Certified with Qualifications

MDE Response:

MDE concurs with the level of certification. The Department will strenghten controls to ensure that an independent verification of Discharge Monitoring Reports to the wastewater treatment plants data recorded into ICIS is documented and retained for future reference.

Managing for Results
Performance Measures

Department of Environment

July 2011

Performance Measure:

Water Impaired by Nutrients Per the 303 (d) listing Cycle
(*Managing for Results Annual Performance Report Page 49)*

Calendar Year 2008 Actual Results Reported: 107

Level of Certification: Certified with Qualification

MDE Response:

MDE concurs with the level of certification. The Department will periodically verify data received from DNR used to calculate the performance measure. In addition, the Department will periodically verify that changes made to the waters impaired database by DNR/RAS staff are verified by supervisory personnel that do not have write access to the database.

Managing for Results
Performance Measures

Department of Environment

July 2011

Performance Measure:

Percentage of Marylanders Served by Public Water Systems in Significant Compliance with Rules Adopted as of 2009
(*Budget Book 3 Page 604)*

Fiscal Year 2009 Actual Results Reported: 87%

Level of Certification: Factors Prevented Certification

MDE Response:

MDE concurs with level of certification. The Department will strengthen controls to ensure that adequate documentation supporting the performance measure calculation is maintained for future reference**.**

Managing for Results
Performance Measures

Department of Environment

July 2011

Performance Measure:

Three-Year Average of Days the Eight-Hour Ozone Standard was Exceeded
(Managing for Results Annual Performance Perport Page 51)

Calendar Year 2009 Actual Results Reported: 32.3

Level of Certification: Certified with Qualifications

MDE Response:

MDE concurs with the level of certification. The Department will strenghten controls to ensure that independent verifications of changes made to the ozone concentration data collected are performed on a test basis and that independent reconciliations of the ozone concentration data transferred to the EPA's national ozone database are performed on a test basis. However, MDE would like to point out that the current process implemented has been reviewed and approved by the granting federal agency (EPA) and is considerd to be the industry standard.

Maryland
Department of Agriculture

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Office of the Secretary

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Anthony G. Brown, Lt. Governor
Earl F. Hance, Secretary
Mary Ellen Setting, Deputy Secretary

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June 13, 2011

Mr. Bruce A. Myers, CPA
Legislative Auditor
State of Maryland – Office of Legislative Audits
State Office Building, Room 1202
301 West Preston Street
Baltimore, MD 21201

Dear Mr. Myers:

Attached you will find our responses to your draft Performance Audit Report, dated May, 2011 for the Maryland Department of Agriculture for Managing for Results Performance Measures.

Per your request, we will submit both paper and electronic copies to response@ola.state.md.us.

If you have any questions or specific issues regarding our response, please contact Jim Wallace at (410) 841-5855.

Sincerely,

Earl Hance

Earl F. Hance
Secretary

EH/sf

Recommendations

The following detailed recommendations are among those we made to DNR, MDE and MDA to help strengthen the quality control processes and improve reporting for the measures we audited.

- Establish procedures to ensure that all relevant data are included in the measure calculation and that the data, including data obtained from third parties, are reasonable accurate and complete.
- Retain documentation supporting the reported measure results.
- Accurately submit reported results that are prepared in a manner that is consistent with clearly written performance measure definitions.

Response

The Maryland Department of Agriculture has already restricted database access to "read only" for data fields that relate to technical information.

AUDIT TEAM

Stephen C. Pease, CPA
Audit Manager

Terry S. Gibson
Senior Auditor

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Staff Auditor