

R30B34
University of Maryland Center for Environmental Science
University System of Maryland

Operating Budget Data

(\$ in Thousands)

	FY 06	FY 07	FY 08	FY 07-08	% Change
	<u>Actual</u>	<u>Working</u>	<u>Allowance</u>	<u>Change</u>	<u>Prior Year</u>
General Funds	\$14,054	\$15,450	\$17,387	\$1,936	12.5%
Other Unrestricted Funds	5,878	5,189	5,207	18	0.3%
Total Unrestricted Funds	19,932	20,639	22,593	1,954	9.5%
Restricted Funds	<u>15,599</u>	<u>18,356</u>	<u>18,570</u>	<u>214</u>	<u>1.2%</u>
Total Funds	\$35,531	\$38,995	\$41,163	\$2,168	5.6%

- General funds increase \$1.9 million, or 12.5%, in the fiscal 2008 allowance primarily due to current services cost increases. Overall, the fiscal 2008 allowance for the University of Maryland Center for Environmental Science (UMCES) increases \$2.2 million, or 5.6%.
- Health insurance costs decline due to one-time savings. Adjusting for the one-time savings, the proposed budget increases \$2.6 million, or 6.7% above the fiscal 2007 working appropriation.

Personnel Data

	FY 06	FY 07	FY 08	FY 07-08
	<u>Actual</u>	<u>Working</u>	<u>Allowance</u>	<u>Change</u>
Regular Positions	283.11	283.11	283.11	0.00
Contractual FTEs	<u>37.00</u>	<u>37.00</u>	<u>37.00</u>	<u>0.00</u>
Total Personnel	320.11	320.11	320.11	0.00

Vacancy Data: Regular Positions

Turnover, Excluding New Positions	4.39	1.55%
Positions Vacant as of 12/31/06	19.28	6.8%

- UMCES receives no additional positions in the fiscal 2008 allowance.

Note: Numbers may not sum to total due to rounding.

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Analysis in Brief

Major Trends

Number of Large Grants Decreases; Currently at Five-year Low: The number of grants received in excess of \$300,000 in fiscal 2006 was 10 grants. This is the lowest in at least five years.

Participation in K-12 Education Programs Increases for Teachers and Remains Steady for Students: In fiscal 2006 the number of teachers participating in environmental education programs increased to 400. The number of students participating remained steady at 11,000.

Issues

Oyster Production Levels Increase Dramatically: Oyster production at the Aquaculture Research and Ecology Laboratory has increased dramatically to 350 million spat-on-shell in 2006.

Recommended Actions

	<u>Funds</u>
1. Add language expressing the intent of the General Assembly that the University of Maryland Center for Environmental Science apply future increases in indirect cost recovery towards repayment of the loan for the research vessel.	
2. Add language restricting the use of funds for no other purpose than the repayment of the lease for the research vessel.	
3. Reduce the general funds provided for new facilities.	\$ 117,500
Total Reductions	\$ 117,500

Updates

Personnel Study Continues: There have been no new positions at UMCES since fiscal 2005. In fiscal 2007, research personnel account for 60.3% of total personnel.

R30B34
University of Maryland Center for Environmental Science
University System of Maryland

Operating Budget Analysis

Program Description

The University of Maryland Center for Environmental Science (UMCES) is a research institution for environmental studies. Its research focuses on the watersheds, estuaries, and coastal areas of the State of Maryland and the greater Chesapeake Bay region. One of the institution's goals is to use research to help predict conditions in Maryland's ecology.

UMCES includes three geographically distinct laboratories under a single administration. The labs are:

- Appalachian Laboratory at Frostburg;
- Chesapeake Biological Laboratory at Solomon's Island; and
- Horn Point Laboratory at Cambridge.

Each of the laboratories serves as a regional center. To support the institution's goal of strengthening K-12 education and teacher training in environmental education, each site offers education programs about natural sciences to teachers and students from K-12 schools. Environmental education programs also serve environmental interest groups and institutions within and beyond the University System of Maryland that are concerned with environmental research, education, and service.

UMCES provides advisory services to local Chesapeake Bay industries and also is the principal source of independent scientific information on environmental matters for Maryland's lawmakers, State agencies, and regional and national coastal management programs. To shore up financial support for its services, UMCES seeks to increase contract and grant agreements and contributions from private sources.

While UMCES does not grant degrees, its faculty members contribute to graduate education by advising, teaching, and supervising the research of students enrolled in the systemwide Marine-Estuarine-Environmental Sciences program. Additional graduate education activities include cooperative programs in fisheries, wildlife management, and toxicology. These activities further the institution's goals of providing quality research and graduate education and helping to build an educated workforce.

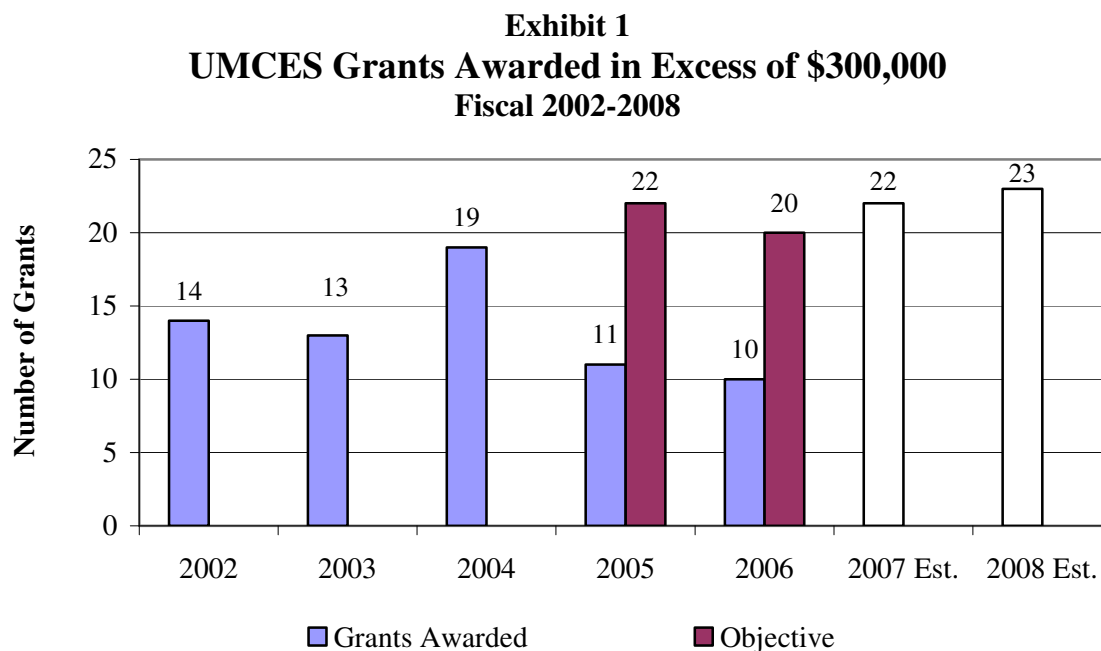
Performance Analysis: Managing for Results

Number of Chesapeake Bay Restoration Projects Declines

A core component of UMCES's mission is to apply scientific knowledge to the management of the Chesapeake Bay. Therefore, UMCES tracks the number of Chesapeake Bay restoration projects it is involved in through grants and contracts. In fiscal 2006, the number of these projects declined from 209 in fiscal 2005 to 185. UMCES has recently hired several faculty that focus on the Chesapeake Bay, and it is anticipated that funding for these projects will increase in a year or two. This will allow more projects to take place.

Number of Large Grants Decreases; Currently at Five-year Low

Another core component of UMCES's mission is research. One measure of this mission is the amount of grant and contract dollars received in a given year. **Exhibit 1** shows the number of grants received in excess of \$300,000 over the past several years. In fiscal 2006, 10 grants were awarded – the lowest in at least five years. UMCES reports that in prior years, several senior faculty have left and that this has had a negative impact on the number of grants received. However, UMCES has recently hired three new faculty and is searching for a fourth. Although these faculty will be hired at a junior level and less likely to initially receive large grants, UMCES expects the number of grants to increase in the next couple of years as the faculty build their research programs.

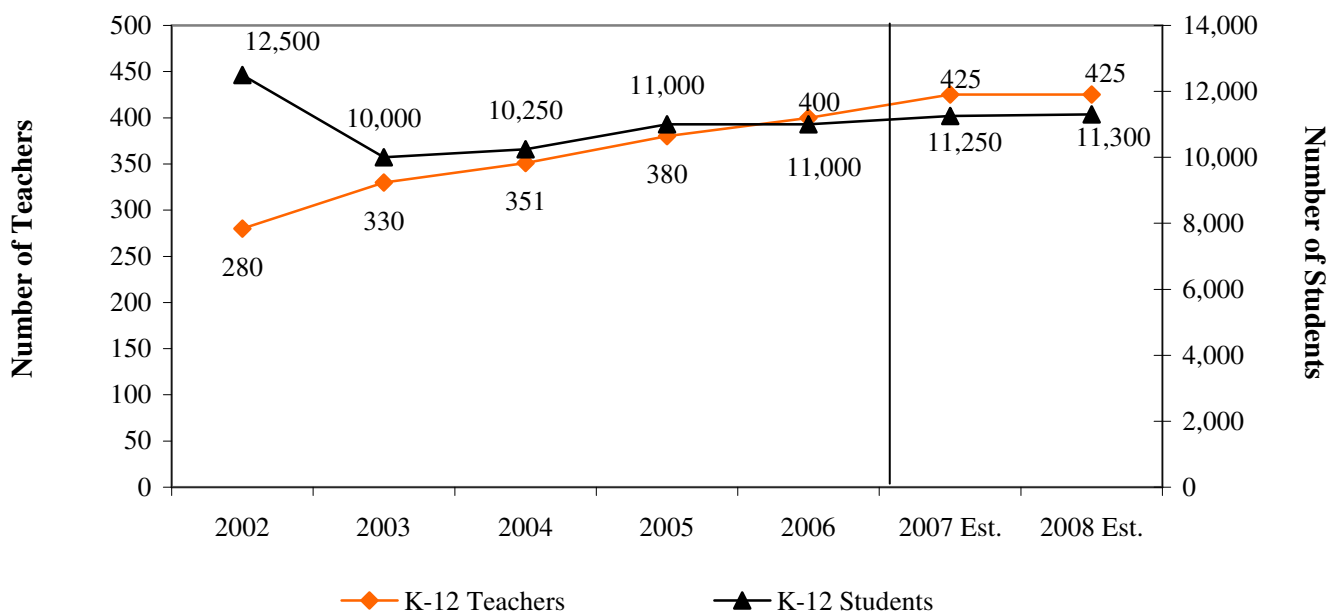


Source: Governor's Budget Books, Fiscal 2008

Participation in K-12 Education Programs Increases for Teachers and Remains Steady for Students

In addition to research, UMCES has a goal to strengthen K-12 education and teacher training in environmental education programs. The number of K-12 students participating in environmental education in fiscal 2006 remains steady at 11,000, as shown in **Exhibit 2**. Modest increases are expected through at least fiscal 2008. The number of K-12 teachers participating in environmental education increased in fiscal 2006 to 400. Overall, this measure has increased 43% since fiscal 2002.

Exhibit 2
K-12 Teachers and Students
Participating in Environmental Education Programs
Fiscal 2002-2008



Source: Governor’s Budget Books, Fiscal 2008

Governor’s Proposed Budget

The general fund allowance for fiscal 2008 is \$1.9 million above the fiscal 2007 level, an increase of 12.5%, as shown in **Exhibit 3**. Most of this increase will go toward current services cost increases. Other unrestricted funds increase \$18,000, or 0.3%, due to sales and services of educational activities. Restricted funds increase \$0.2 million, or 1.2%, in the fiscal 2008 allowance. However, a one-time health insurance savings will free \$0.4 million in total funds for expenditure in fiscal 2008. Overall, when including the one-time savings, total funds for UMCES increase \$2.6 million, or 6.7%.

Exhibit 3
Governor’s Proposed Budget
University of Maryland Center for Environmental Science
(\$ in Thousands)

	<u>FY 06</u> <u>Actual</u>	<u>FY 07</u> <u>Working</u>	<u>FY 08</u> <u>Allowance</u>	<u>FY 07-08</u> <u>Change</u>	<u>% Change</u> <u>Prior Year</u>
General Funds	\$14,054	\$15,450	\$17,387	\$1,936	12.5%
Other Unrestricted Funds	5,878	5,189	5,207	18	0.3%
Total Unrestricted Funds	19,932	20,639	22,593	1,954	9.5%
Restricted Funds	15,599	18,356	18,570	214	1.2%
Retiree Health Adjustment *		<u>-411</u>		<u>411</u>	
Total Funds	\$35,531	\$38,584	\$41,163	\$2,580	6.7%

*The retiree health adjustment in fiscal 2007 amounts to an additional \$0.4 million that is available for expenditure in fiscal 2008.

Note: Numbers may not sum to total due to rounding.

Where Are the Additional Funds Going?

UMCES reports that the additional general funds will be used for current services costs including salary increments (\$0.3 million), health inflation (\$0.1 million), retirement (\$0.1 million), utility inflation (\$0.5 million), project management fees (\$0.2 million), and facility renewal (\$0.2 million).

Current services costs also include \$0.2 million for new facilities. Of this amount, \$65,152 will go toward the Truitt Building addition, and \$117,500 will go toward the new oyster pier. The oyster pier project received general obligation bond funds in the fiscal 2007 *Capital Improvement Program* (CIP) for planning. Construction was originally planned to start in fiscal 2008. However, the fiscal 2008 CIP has deferred construction until fiscal 2010.

The Department of Legislative Services (DLS) recommends that the fiscal 2008 general fund allowance for UMCES be reduced by \$117,500. These funds are not needed due to the deferral of construction of the Oyster Production Facility to fiscal 2010.

UMCES’s current services increase for fiscal 2008 also includes debt service costs of \$0.7 million. This is the first installment of the repayment for the Treasurer’s master lease program loan of \$6.0 million for the design and construction of a new research vessel. The master lease program is funded by the sale of bonds and provides funds to State agencies for large one-time purchases. The research vessel was included in the program, and the use of the loan was approved by

the budget committees during the 2006 interim. The \$0.7 million represents UMCES’s best estimate as to the cost of the first installment. Repayment will take place over 10 years. However, repayments do not become due until an expenditure for the vessel has been made. UMCES has completed a request for proposal and expects to go before the Board of Public Works for approval of a selected bid by May 2007. Therefore, the first repayment is due in fiscal 2008. UMCES expects research grants will increase when the new vessel is available for use. Corresponding with this increase would be an increase in indirect cost recovery for UMCES.

Therefore, DLS recommends that as indirect cost recoveries related to the use of the vessel increase, UMCES should plan to use 50% of these funds to repay the loan. This would decrease the need for general funds to repay the loan over the next 10 years. Additionally, DLS recommends that if the first installment is actually less than the anticipated \$0.7 million, that the excess funds be placed in a fund balance specifically to be used towards future loan repayments. This would also reduce the need for general funds in future years.

UMCES’ State-supported budget by program is shown in **Exhibit 4**. For fiscal 2008, State-supported funds account for 48.3% of the total budget. Of the State-supported amount, general funds account for 87.5%. In the fiscal 2008 allowance, institutional support increases \$0.9 million, or 29.2%, over fiscal 2007. This is mostly due to an increase in fixed charges related to the loan repayment of \$0.7 million for the research vessel. The remaining increase is related to new facilities and construction management fees. Expenditures for the operation and maintenance of the plant increase \$0.6 million, or 17%. This is due to increased costs for fuel oil and utilities. The research budget is expected to increase \$0.4 million, or 3.3%. This is due to increases in salaries at all research centers and fixed charges at two research centers.

Exhibit 4
UMCES State-supported Budget Changes by Program
Fiscal 2006, 2007, and 2008
(\$ in Thousands)

Expenditures	2006	Working 2007	% Change 06-07	Allowance 2008	\$ Change 07-08	% Change 07-08
Research	\$10,686	\$10,846	1.5%	\$11,204	\$358	3.3%
Plant	3,595	3,903	8.6%	4,567	663	17.0%
Institutional support	2,279	3,133	37.5%	4,047	915	29.2%
Public service	63	63	-0.4%	63	0	0.0%
Total	\$16,622	\$17,944	8.0%	\$19,880	\$1,936	10.8%
Revenues						
General funds	\$14,054	\$15,450	9.9%	\$17,387	\$1,936	12.5%
Other State support	2,456	2,494	1.5%	2,494	0	0.0%
Use of fund balance	112	0	0.0%	0	0	0.0%
Total	\$16,622	\$17,944	8.0%	\$19,880	\$1,936	10.8%

Source: University of Maryland Center for Environmental Science

Issues

1. Oyster Production Levels Increase Dramatically

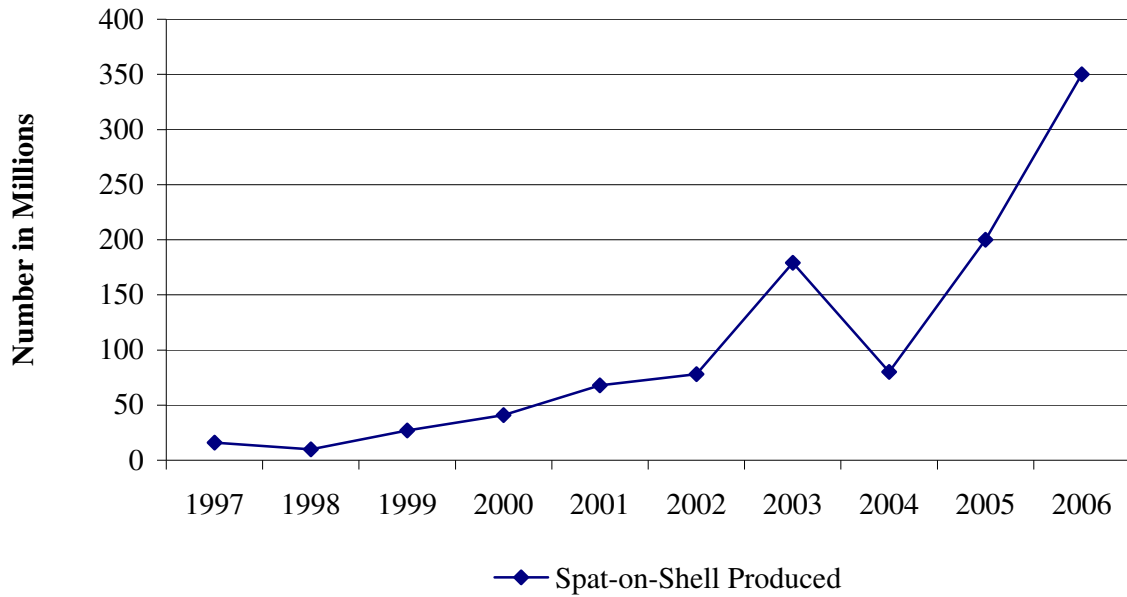
An important part of UMCES's mission is to apply scientific knowledge to the management of the Chesapeake Bay. The native oyster production program is consistent with this mission. The Aquaculture Research and Ecology Laboratory (AREL) operates at the Horn Point Laboratory in Cambridge. The process of growing oysters requires several steps. First, broodstock are harvested and kept in tanks at AREL. The temperature of the water is gradually raised until the oysters spawn. The larvae are then fed algae until they have reached the setting stage. The larvae are then set on oyster shells that have been collected and cleaned. Frequently, restaurants donate the shells. At this point, the oyster is called a spat-on-shell. It then takes several weeks for the spat to harden and be ready to be planted in the Chesapeake Bay or its tributaries. Overall, the entire process may take two to four years.

Exhibit 5 shows the number of spat-on-shell that have been produced and planted since 1997. The number of spat-on-shell produced has increased dramatically in the last two years. UMCES attributes this to three factors: AREL provides a modern, large-scale culture facility; techniques for setting spat-on-shell have improved; and greater efficiencies and experience in handling larger quantities of spat. Since 2004, production has increased over 300%. Since 1997, production has increased over 2,000%. Currently, the hatchery operation occupies more than 14,000 net assignable square feet. After the construction of the new pier, scheduled for fiscal 2010, an additional 21,000 square feet will be available for oyster production. It is estimated that over one billion spat per year can be produced with the addition of this new facility.

It is important to recognize that the hatchery process of any organism will result in a certain mortality level. For the oyster hatchery at UMCES, the mortality rate has been estimated to be 30% during the nursery period. The numbers in Exhibit 5 have been adjusted for this mortality rate. At this point, UMCES has not been able to gather data on the mortality rate resulting from the planting of the spat as this is a labor intensive exercise. UMCES plans to start gathering this data as part of the new pier project. Since the new pier will decrease the handling necessary to plant the spat, it is anticipated that the mortality rate due to handling will be decreased.

The funding for the hatchery operations comes from two main sources and incorporates grants and contracts. The Department of Natural Resources provides between \$0.5 and \$0.7 million each year. The Oyster Recovery Partnership provides approximately \$0.4 million each year. These grants provide salaries for oyster research personnel.

Exhibit 5
Spat-on-Shell Produced
(in Millions)
Calendar 1997-2006



Source: University of Maryland Center for Environmental Science

Recommended Actions

1. Add the following language:

Provided that it is the intent of the General Assembly that 50 percent of the increase in indirect cost recovery associated with the use of a new research vessel be applied to future repayment installments to the master lease program.

Explanation: The language expresses the intent of the General Assembly that a portion of any increases in indirect cost recovery that is expected as a result of increased grant awards be applied to future repayment installments to the master lease program. The University of Maryland Center for Environmental Science (UMCES) expects grant revenues to increase since the research vessel will have improved capabilities for research. These improvements will allow UMCES to compete for grants for which they would otherwise not be eligible. When grant funding increases, it is expected that indirect cost recovery revenue will also increase. Fifty percent of this increase should be applied to the repayments.

Information Request	Author	Due Date
Report on total grants awarded and the corresponding indirect cost recovery associated with the grants. Specifically identify grant money associated with the use of the current research vessel (in total expenditures per year, as well as the total value of the grant). The report should include the prior year actual, and the current year working.	UMCES	December 1, 2007; December 1, 2008

2. Add the following language:

Further provided that \$700,000 of this appropriation for the University of Maryland Center for Environmental Science may be used for no other purpose than the repayment of the master lease for the research vessel in fiscal 2008. Funds not expended for this purpose in fiscal 2008 may be retained in fund balance to apply to future repayment installments.

Explanation: If the \$0.7 million that is budgeted as the repayment installment on the master lease for the research vessel is in excess of the actual amount of the repayment, it is the intent of the General Assembly that the excess funds be applied to future payments of the lease. The master lease program provided \$6 million for the design and construction of a research vessel. Expenditures for the vessel are expected to begin in May 2007. Lease repayments become due after expenditures begin. Because expenditures have not yet begun, the \$0.7 million is an estimated repayment amount.

Information Request	Author	Due Date
Report on the actual repayment amount needed for fiscal 2008.	UMCES	September 1, 2007

	<u>Amount Reduction</u>
3. Reduce the general funds provided for the Oyster Production Facility. The fiscal 2008 allowance provides \$117,500 to the University of Maryland Center for Environmental Science to support the new facility, which was to be constructed in fiscal 2008. However, the Governor’s <i>Capital Improvement Program</i> for fiscal 2008 deferred construction until fiscal 2010. The project is not scheduled to receive any funds in fiscal 2008. Therefore, these general funds are not necessary.	\$ 117,500 UF
Total Unrestricted Fund Reductions	\$ 117,500

Updates

1. Personnel Study Continues

The total UMCES workforce has not increased since fiscal 2005. Currently, UMCES has 320 regular and contractual positions. This includes filled and vacant positions.

Since UMCES classifies all of its personnel as research, the Department of Legislative Services cannot evaluate changes in the composition of personnel by program, which includes operations and maintenance of physical plant, institution support, and public service. However, DLS evaluated positions across the University System of Maryland (USM) – including UMCES – by faculty, exempt, and non-exempt categories. These data are for filled regular positions only in fiscal 2007.

At UMCES faculty account for 60.3% of the fiscal 2007 filled regular positions. Although some UMCES faculty teach courses, all are categorized as research faculty. For USM as a whole, the faculty proportion is 38.1%. Exempt personnel, who are generally higher-paid administrators and managers and are exempt from overtime pay, account for 18.8% of the total, as compared to 34.6% for USM as a whole. Non-exempt personnel account for 20.9% as compared to 27.3% for USM as a whole.

Current and Prior Year Budgets

Current and Prior Year Budgets University of Maryland Center for Environmental Science (\$ in Thousands)

	<u>General Fund</u>	<u>Other Unrestricted Fund</u>	<u>Total Unrestricted Fund</u>	<u>Restricted Fund</u>	<u>Total</u>
Fiscal 2006					
Legislative Appropriation	\$13,893	\$4,381	\$18,274	\$17,056	\$35,330
Deficiency Appropriation	0	0	0	0	0
Budget Amendments	160	1,608	1,768	800	2,568
Reversions and Cancellations	0	-110	-110	-2,258	-2,368
Actual Expenditures	\$14,054	\$5,878	\$19,932	\$15,599	\$35,531
Fiscal 2007					
Legislative Appropriation	\$15,462	\$4,439	\$19,901	\$17,856	\$37,757
Budget Amendments	-12	750	738	500	1,238
Working Appropriation	\$15,450	\$5,189	\$20,639	\$18,356	\$38,995

Note: Numbers may not sum to total due to rounding.

Fiscal 2006

The University of Maryland Center for Environmental Science received additional general funds totaling \$0.2 million through budget amendments. This amount included a \$0.1 million increase for State employee cost-of-living adjustment (COLA) increases and a \$47,477 increase to realign health insurance expenditures with projections. Other unrestricted funds increased \$1.6 million through budget amendments to reflect increased indirect cost recovery from federal and State grants and contracts. Restricted funds increased \$0.8 million due to an increase in federal and State grant and contract activity.

UMCES cancelled \$0.1 million in unrestricted funds due to less than anticipated indirect cost recovery from grants and contracts. An additional \$2.3 million of restricted funds was cancelled also due to less than anticipated grant and contract expenditures.

Fiscal 2007

For fiscal 2007, general funds decreased a net total of \$11,689 through budget amendments. UMCES received an increase of \$232,689 in general funds for State employee COLA increases. However, this increase was offset by a decrease of \$244,378 in general funds to reflect the reallocation of general funds to balance health cost savings.

Other unrestricted funds increased \$750,000 through budget amendment. Increases included \$375,000 in federal grant and contract activity, \$355,000 in State grant and contract activity, and \$20,000 in private grant and contract activity. Restricted funds increased \$500,000 through budget amendment due to federal and State grant and contract activity.

Audit Findings

Audit Period for Last Audit:	May 19, 2003 – June 11, 2006
Issue Date:	October 2006
Number of Findings:	1
Number of Repeat Findings:	0
% of Repeat Findings:	0%
Rating: (if applicable)	n/a

Finding 1: Disbursements were often processed by one UMCES laboratory without evidence that the services were received.

**Object/Fund Difference Report
UM Center for Environmental Science**

<u>Object/Fund</u>	<u>FY06 Actual</u>	<u>FY07 Working Appropriation</u>	<u>FY08 Allowance</u>	<u>FY07-FY08 Amount Change</u>	<u>Percent Change</u>
Positions					
01 Regular	283.11	283.11	283.11	0	0%
02 Contractual	37.00	37.00	37.00	0	0%
Total Positions	320.11	320.11	320.11	0	0%
Objects					
01 Salaries and Wages	\$ 21,277,151	\$ 23,245,653	\$ 23,648,182	\$ 402,529	1.7%
02 Technical and Spec. Fees	306,035	30,000	30,000	0	0%
03 Communication	299,226	427,481	412,749	-14,732	-3.4%
04 Travel	800,674	766,597	766,597	0	0%
06 Fuel and Utilities	1,965,857	1,985,571	2,588,579	603,008	30.4%
07 Motor Vehicles	520,286	422,284	425,714	3,430	0.8%
08 Contractual Services	7,212,634	8,107,823	8,167,687	59,864	0.7%
09 Supplies and Materials	1,883,450	1,646,563	1,646,563	0	0%
11 Equip – Additional	510,502	1,259,933	1,259,933	0	0%
12 Grants, Subsidies, and Contributions	50,213	24,900	24,900	0	0%
13 Fixed Charges	659,153	722,317	1,610,586	888,269	123.0%
14 Land and Structures	45,541	355,975	581,950	225,975	63.5%
Total Objects	\$ 35,530,722	\$ 38,995,097	\$ 41,163,440	\$ 2,168,343	5.6%
Funds					
40 Unrestricted Fund	\$ 19,932,213	\$ 20,639,058	\$ 22,593,320	\$ 1,954,262	9.5%
43 Restricted Fund	15,598,509	18,356,039	18,570,120	214,081	1.2%
Total Funds	\$ 35,530,722	\$ 38,995,097	\$ 41,163,440	\$ 2,168,343	5.6%

Note: The fiscal 2007 appropriation does not include deficiencies, and the fiscal 2008 allowance does not reflect contingent reductions.

**Fiscal Summary
UM Center for Environmental Science**

<u>Program/Unit</u>	<u>FY06 Actual</u>	<u>FY07 Wrk Approp</u>	<u>FY08 Allowance</u>	<u>Change</u>	<u>FY07-FY08 % Change</u>
02 Research	\$ 35,530,722	\$ 38,995,097	\$ 41,163,440	\$ 2,168,343	5.6%
Total Expenditures	\$ 35,530,722	\$ 38,995,097	\$ 41,163,440	\$ 2,168,343	5.6%
Unrestricted Fund	\$ 19,932,213	\$ 20,639,058	\$ 22,593,320	\$ 1,954,262	9.5%
Restricted Fund	15,598,509	18,356,039	18,570,120	214,081	1.2%
Total Appropriations	\$ 35,530,722	\$ 38,995,097	\$ 41,163,440	\$ 2,168,343	5.6%

Note: The fiscal 2007 appropriation does not include deficiencies, and the fiscal 2008 allowance does not reflect contingent reductions.