

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

***Operating Budget Data***

(\$ in Thousands)

	<u>FY 10</u> <u>Actual</u>	<u>FY 11</u> <u>Working</u>	<u>FY 12</u> <u>Allowance</u>	<u>FY 11-12</u> <u>Change</u>	<u>% Change</u> <u>Prior Year</u>
General Funds	\$18,517	\$17,949	\$18,133	\$184	1.0%
Contingent & Back of Bill Reductions	0	0	-83	-83	
<b>Adjusted General Fund</b>	<b>\$18,517</b>	<b>\$17,949</b>	<b>\$18,050</b>	<b>\$101</b>	<b>0.6%</b>
Special Funds	0	695	965	271	38.9%
<b>Adjusted Special Fund</b>	<b>\$0</b>	<b>\$695</b>	<b>\$965</b>	<b>\$271</b>	<b>38.9%</b>
Other Unrestricted Funds	3,577	6,234	6,260	26	0.4%
Contingent & Back of Bill Reductions	0	0	-39	-39	
<b>Adjusted Other Unrestricted Fund</b>	<b>\$3,577</b>	<b>\$6,234</b>	<b>\$6,221</b>	<b>-\$13</b>	<b>-0.2%</b>
Total Unrestricted Funds	22,095	24,878	25,359	481	1.9%
Contingent & Back of Bill Reductions	0	0	-123	-123	
<b>Adjusted Total Unrestricted Funds</b>	<b>\$22,095</b>	<b>\$24,878</b>	<b>\$25,236</b>	<b>\$359</b>	<b>1.4%</b>
Restricted Funds	15,426	18,554	18,718	164	0.9%
Contingent & Back of Bill Reductions	0	0	-70	-70	
<b>Adjusted Restricted Fund</b>	<b>\$15,426</b>	<b>\$18,554</b>	<b>\$18,648</b>	<b>\$94</b>	<b>0.5%</b>
<b>Adjusted Grand Total</b>	<b>\$37,521</b>	<b>\$43,431</b>	<b>\$43,884</b>	<b>\$453</b>	<b>1.0%</b>

- General funds for the University of Maryland Center for Environmental Science (UMCES) increase \$0.1 million, or 0.6%, in the fiscal 2012 allowance after adjusting for \$83,077 in health insurance and retirement savings. When accounting for a \$0.3 million increase in the Higher Education Investment Fund, the underlying growth is \$0.4 million over fiscal 2011.
- Other unrestricted funds decrease \$13,180, or 0.2%, and restricted funds grow \$94,023, or 0.5%, after adjusting the fiscal 2012 allowance to reflect health insurance and retirement savings.

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

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***Personnel Data***

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	<b><u>FY 10 Actual</u></b>	<b><u>FY 11 Working</u></b>	<b><u>FY 12 Allowance</u></b>	<b><u>FY 11-12 Change</u></b>
Regular Positions	262.44	258.94	258.94	0.00
Contractual FTEs	<u>37.00</u>	<u>37.00</u>	<u>37.00</u>	<u>0.00</u>
<b>Total Personnel</b>	<b>299.44</b>	<b>295.94</b>	<b>295.94</b>	<b>0.00</b>

***Vacancy Data: Regular Positions***

Turnover and Necessary Vacancies, Excluding New Positions	10.05	3.88%
Positions and Percentage Vacant as of 12/31/10	21.07	8.10%

- The fiscal 2012 allowance does not provide for any new regular positions.

## ***Analysis in Brief***

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### **Major Trends**

***Number of Chesapeake Bay Restoration Projects Declines:*** In fiscal 2010, the number of projects declined 5.5% to 181 projects.

***Research Expenditures Continue to Grow:*** In fiscal 2010, research expenditures are projected to grow to the highest level in the past five years to \$42.0 million.

***K-12 Students and Teachers Participating in Programs Level Off:*** For the past two years, 11,500 K-12 students and 450 teachers have participated in UMCES' environmental education programs.

### **Issues**

***UMCES Plans to Grant Degrees:*** UMCES proposes to change its mission to include assuming the leadership of the Marine Estuarine Environmental Science Program which is currently administered by the University of Maryland, College Park. This change lays the groundwork for UMCES to offer the graduate program, thereby becoming a degree granting institution.

### **Recommended Actions**

1. See the University System of Maryland overview for systemwide recommendations.

### **Updates**

***Spat-on-shell Production:*** While UMCES produced over 500 million spat-on-shell for a third consecutive year, the number of spat dropped from 750 million in 2009 to 557 million in 2010. This was due to the hatchery staff spending a significant amount of effort conducting research trials designed to help meet the larval demands associated with the new setting tanks located at the oyster pier.

*R30B34 – USM – University of Maryland Center for Environmental Science*

*Analysis of the FY 2012 Maryland Executive Budget, 2011*

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

## ***Operating Budget Analysis***

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### **Program Description**

The University of Maryland Center for Environmental Science (UMCES) is a research institution for environmental and natural sciences studies. Its mission is to develop a comprehensive program of environmental research, education, and service. Research focuses on the watersheds, estuaries, and coastal areas of the State of Maryland and the greater Chesapeake Bay region, applying knowledge to help predict conditions in Maryland's ecology. Additionally, UMCES administers the Maryland Sea Grant College program. Funded by the National Oceanic and Atmospheric Administration, the Sea Grant program is a network of 30 university-based programs located in the coastal and Great Lakes regions.

UMCES includes three geographically distinct laboratories under a single administration.

- Appalachian Laboratory at Frostburg State University, founded in 1962 at the headwaters of the Chesapeake Bay watershed with research focusing on landscape and watershed ecology;
- Chesapeake Biological Laboratory at Solomon's Island, founded in 1925, conducts marine research and is home to UMCES' research fleet; and
- Horn Point Laboratory at Cambridge, founded in 1973, conducts research on biology, chemistry, physics, and ecology of the organisms and ecosystems from wetlands and estuarine water of the Chesapeake Bay.

Each of the laboratories serves as a regional center, offering natural science education programs to K-12 teachers and students. Environmental education programs also serve environmental interest groups and institutions within and beyond the University System of Maryland (USM) that are concerned with environmental research, education, and service.

While UMCES does not grant degrees, its faculty members contribute to graduate education by advising, teaching, and supervising the research of undergraduate and graduate students within USM degree-granting institutions. These activities further the institution's goals of providing quality research and graduate education and helping to build an educated workforce.

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

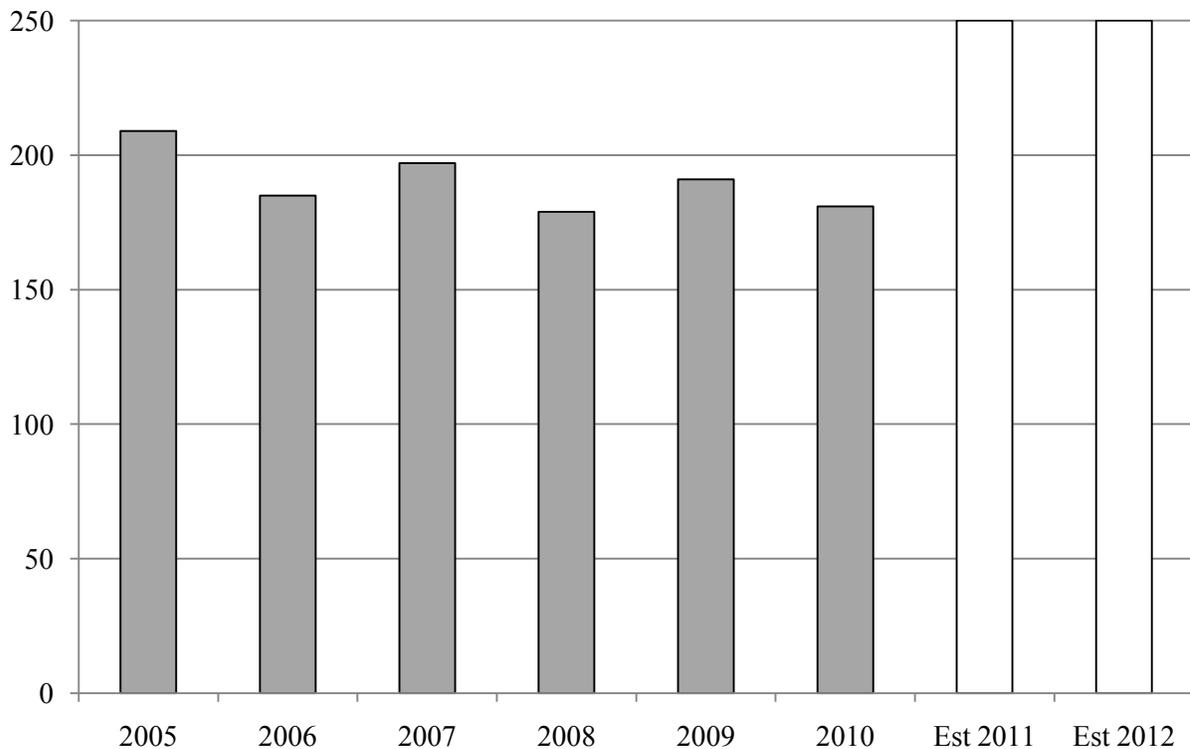
## Performance Analysis: Managing for Results

### Number of Chesapeake Bay Restoration Projects Declines

UMCES tracks the number of Chesapeake Bay restoration projects it is involved with as a measure of strengthening the predictive ecology for Maryland through relevant research programs. Projects are those that focus on (1) the Bay; and (2) aspects of restoration ranging from research concerning the overall health of the Bay to a specific organism. Overall, since fiscal 2005, the number of projects has fluctuated from a high of 209 projects in fiscal 2005 to 179 in fiscal 2008, as shown in **Exhibit 1**. The number of projects declined from 191 in fiscal 2009 to 181 projects in fiscal 2010.

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**Exhibit 1**  
**Chesapeake Bay Restoration Projects**  
**Fiscal 2005-2012**



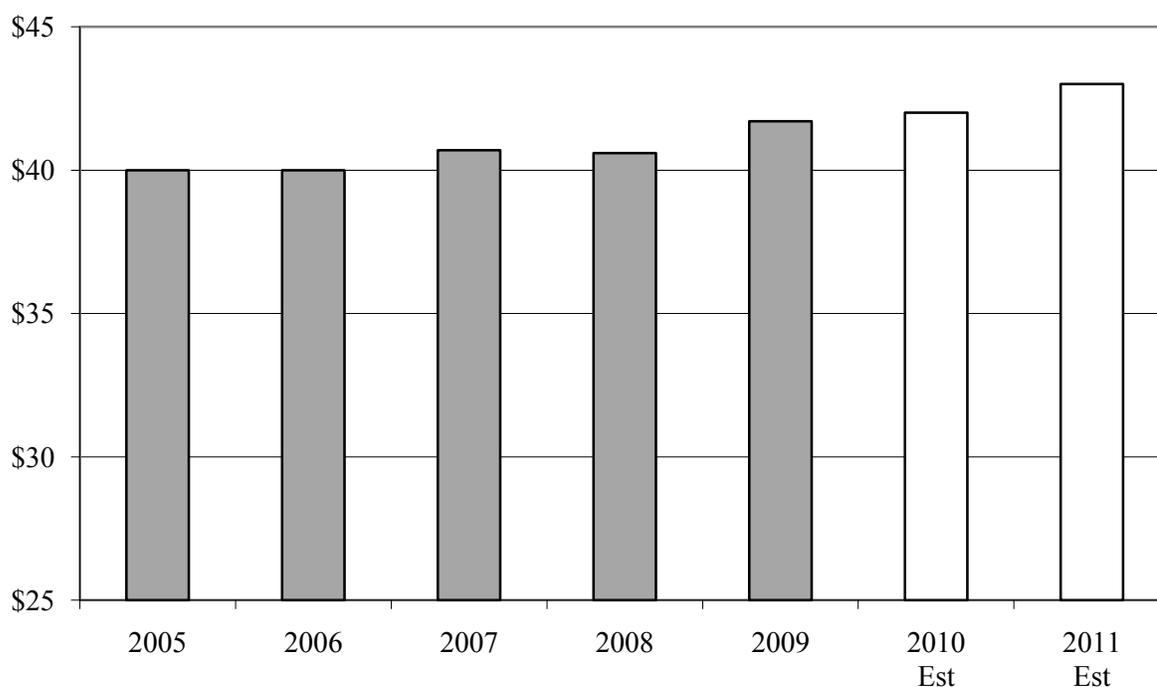
Source: Governor's Budget Books, Fiscal 2012

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## Research Expenditures Continue to Grow

Increasing extramural support from government and private sources is a goal of UMCES. As shown in **Exhibit 2**, research expenditures have steadily grown since fiscal 2006 increasing from \$40 million to \$42 million in fiscal 2010, the highest level over the past five years.

**Exhibit 2**  
**University of Maryland Center for Environmental Science**  
**Research Expenditures**  
**Fiscal 2005-2011**  
**(\$ in Millions)**

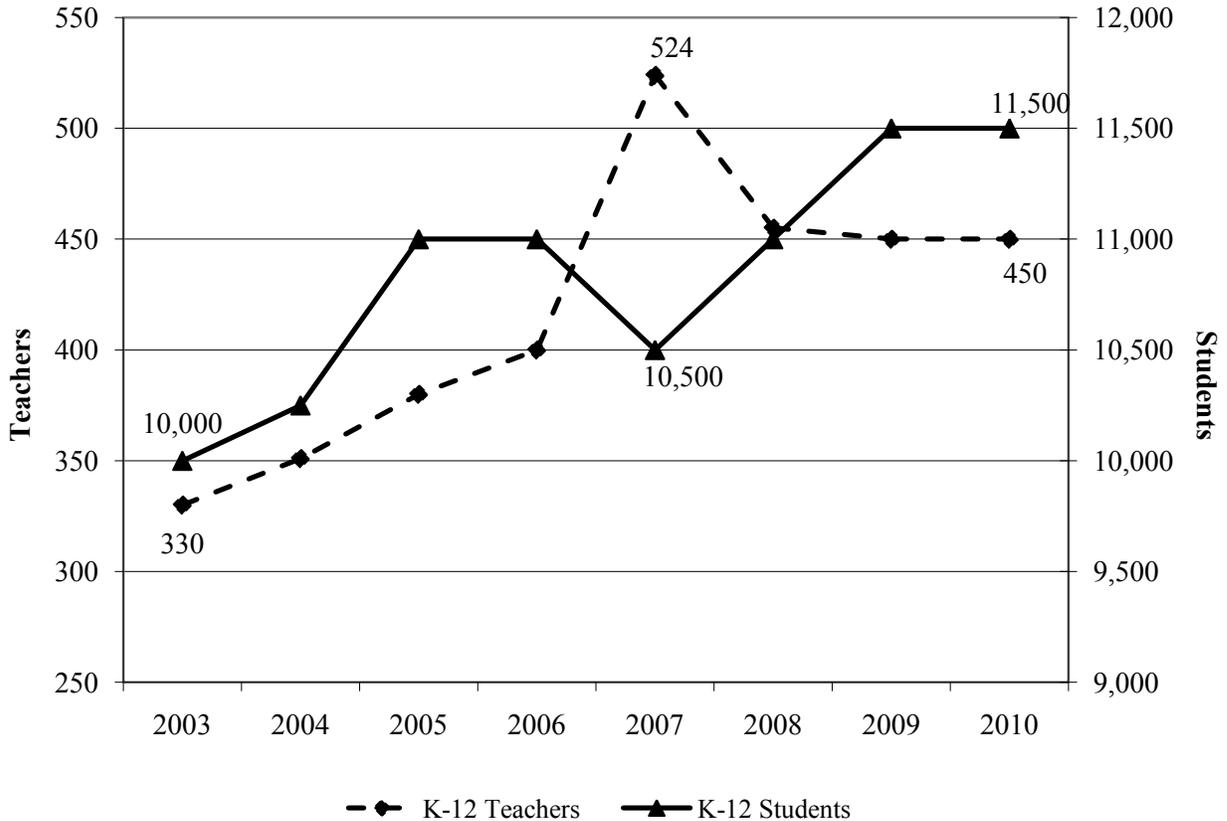


Source: Governor's Budget Books, Fiscal 2012

## K-12 Students and Teachers Participating in Programs Level Off

In addition to research, UMCES strives to strengthen K-12 education and teacher training in environmental education programs. As shown in **Exhibit 3**, for the past two years, UMCES has met its goal of having 11,500 K-12 students and 450 teachers participate in education programs.

**Exhibit 3  
K-12 Teachers and Students  
Participating in Environmental Education Programs  
Fiscal 2003-2010**



Source: Governor’s Budget Books, Fiscal 2012

**Fiscal 2011 Actions**

**Impact of Cost Containment**

Section 44 of the fiscal 2011 budget bill required the Governor to abolish 500 positions in the Executive Branch as of June 30, 2011, which have been removed from the fiscal 2011 working appropriation. UMCES’s share of the reduction was 1 full-time equivalent position.

## Proposed Budget

The general fund allowance for fiscal 2012 is \$0.1 million above fiscal 2011, an increase of 0.6%, after adjusting for health insurance and retirement savings of \$83,077, as shown in **Exhibit 4**. However, when accounting for the Higher Education Investment Fund (HEIF) increase of \$0.3 million the underlying growth is \$0.4 million. Other unrestricted funds decline 0.2%, or \$13,180, after adjusting for \$39,494 to reflect health insurance and retirement savings.

In fiscal 2011, the final reallocation of University of Maryland Biotechnology Institute’s (UMBI) resources was completed via budget amendment with UMCES partnering with the University of Maryland Baltimore County and the University of Maryland, Baltimore in the Institute of Marine and Environmental Technology. The institute was formerly the Center of Marine Biotechnology, one of five UMBI research centers. As part of the reallocation, UMCES received \$0.7 million in general funds and 6.8 full-time equivalent positions which are reflected in the proposed budget.

**Exhibit 4**  
**Governor’s Proposed Budget**  
**University of Maryland Center for Environmental Science**  
**(\$ in Thousands)**

	<b>FY 10</b> <b><u>Actual</u></b>	<b>FY 11</b> <b><u>Working</u></b>	<b>FY 12</b> <b><u>Adjusted</u></b>	<b>FY 11-12</b> <b><u>\$ Change</u></b>	<b>% Change</b> <b><u>Prior Year</u></b>
General Funds	\$18,517	\$17,949	\$18,050	\$101	0.6%
HEIF		695	965	271	38.9%
Total State Funds	18,517	18,644	19,016	372	2.0%
Other Unrestricted Funds	3,577	6,234	6,221	-13	-0.2%
Total Unrestricted Funds	22,095	24,878	25,236	359	1.4%
Restricted Funds	15,426	18,554	18,648	94	0.5%
<b>Total Funds</b>	<b>\$37,521</b>	<b>\$43,431</b>	<b>\$43,884</b>	<b>\$453</b>	<b>1.0%</b>

HEIF: Higher Education Investment Fund

Note: Fiscal 2012 general funds are adjusted by \$83,077; other unrestricted funds by \$39,494; and restricted funds by \$70,142 to reflect across-the-board reductions. Numbers may not sum to total due to rounding.

Source: Governor’s Budget Book, Fiscal 2012

UMCES’ State-supported budget by program is shown in **Exhibit 5**. In fiscal 2011, expenditures for plant grew 42.5%, or \$1.6 million, of which \$0.6 million was due to increases in utilities and the opening of the oyster setting facility which is utility intensive but the costs were not fully known at the time. Additionally expenditures were lower than anticipated in fiscal 2010 due to a number of factors including a mild winter, implementation of energy savings measures, and spending less than anticipated on facilities renewal.

**Exhibit 5**  
**State-supported Budget Changes by Program**  
**Fiscal 2010-2012**  
**(\$ in Thousands)**

	<u>2010</u>	<u>Working 2011</u>	<u>% Change 2010-11</u>	<u>Adjusted 2012</u>	<u>\$ Change 2011-12</u>	<u>% Change 2011-12</u>
<b>Expenditures</b>						
Research	\$12,647	\$12,966	2.5%	\$13,352	\$386	3.0%
Plant	3,803	5,420	42.5%	5,444	23	0.4%
Institutional support	2,552	3,025	18.5%	3,109	84	2.8%
Public service	33	35	6.1%	35	0	-0.7%
Pending Reductions				-123	-123	
<b>Total</b>	<b>\$19,035</b>	<b>\$21,447</b>	<b>12.7%</b>	<b>\$21,817</b>	<b>\$371</b>	<b>1.7%</b>
<b>Revenues</b>						
General Funds	\$18,517	\$17,949	-3.1%	\$18,050	\$101	0.6%
Higher Education Investment Fund		695		965	271	38.9%
Other Unrestricted Funds <sup>1</sup>	3,854	2,767	-28.2%	2,727	-40	-1.4%
Transfer(to)/from Fund Balance	-3,336	36		74	38	
<b>Total</b>	<b>\$19,035</b>	<b>\$21,447</b>	<b>12.7%</b>	<b>\$21,817</b>	<b>\$371</b>	<b>1.7%</b>

<sup>1</sup>Other State support is a component of unrestricted revenue. Other unrestricted revenue considered non-State support includes designated research initiative fund and self-supporting activities.

Note: Fiscal 2012 revenues are reduced by \$83,077 in general funds and \$39,494 in other unrestricted funds reflect across-the-board reductions.

Source: University of Maryland Center for Environmental Science

In fiscal 2012, research increases 3.0%, or \$0.4 million, of which \$0.3 million is related to an anticipated new federal grant that will be awarded to the University of Maryland, College Park (UMCP) in which UMCES will provide matching funds and in-kind contributions such as faculty, staff, and equipment. The remaining \$0.1 million is related to increases in fringe benefit costs. Expenditures for institutional support increase 2.8%, or \$83,821 due to increases in fringe benefit costs.

## **Impact of Cost Containment**

The fiscal 2012 budget reflects several across-the-board actions. In fiscal 2012, UMCES' share of the reduction is \$20,836 in general funds, \$14,874 in other unrestricted funds, and \$26,418 in restricted funds for changes in employee health insurance. Reductions contingent upon statutory changes include \$34,486 in general funds, \$24,619 in other unrestricted funds, and \$43,725 in restricted funds for retiree prescription drug benefits and \$27,755 in general funds for retirement benefits.

## ***Issues***

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### **1. UMCES Plans to Grant Degrees**

The Board of Regents' Educational Policy Committee reviewed and discussed the proposed revised mission statements of all USM institutions and regional centers at the December 2010 meeting. At this time, UMCES proposed to “build on the Center’s success in graduate education, including leadership of the MEES [Marine-Estuarine-Environment Sciences] program...,” laying the groundwork for UMCES to offer the program, thereby becoming a degree granting institution.

The MEES program was established in 1978 as an interdisciplinary and inter-institutional graduate program. The program offers master’s and doctoral degrees in six areas: oceanography, fisheries science, ecology, environmental molecular biology, environmental chemistry, and environmental science. Courses offered through the MEES program are available to any USM graduate student. It is administratively housed at UMCP with the director having a half-time teaching appointment supported by UMCP and half-time research appointment funded by UMCES. The director is considered an UMCP employee.

According to USM, the system requested UMCES to explore the path toward becoming a graduate degree granting institution. USM and UMCES are currently in the discussion phase and are “reviewing the pathway that best serves the current and future graduate students, the participating institutions, and the system.” In order for UMCES to offer a degree, it would need approval of the Board of Regents and the Maryland Higher Education Commission. Once approved, UMCES would then need to seek accreditation for the Middle States Association of Colleges and Schools. However, there are many questions and issues that would need to be resolved before UMCES moves forward toward granting a degree such as arrangements with the participating institutions, particularly UMCP, impact on faculty and students, and the financial implications to UMCES.

**The President should comment on the status of the discussions not only with USM office but the other affected stakeholders including UMCP, faculty, and other institutions participating in the MEES program, and the impact, including financial, this will have on UMCES.**

## ***Recommended Actions***

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1. See the University System of Maryland overview for systemwide recommendations.

## *Updates*

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### **1. Spat-on-shell Production**

The oyster hatchery facility, located at UMCES' Horn Point Laboratory, is a cooperative research and educational effort between UMCES and the Sea Grant Extension Program. The program brings together specialists, experts, and students to apply scientific knowledge to the management of the Chesapeake Bay. The oyster facility is similar to the State's agriculture experimental stations in that it conducts research on oyster production practices including spawning, broodstock, larval culture, settlement, and spat survival during the hatchery process.

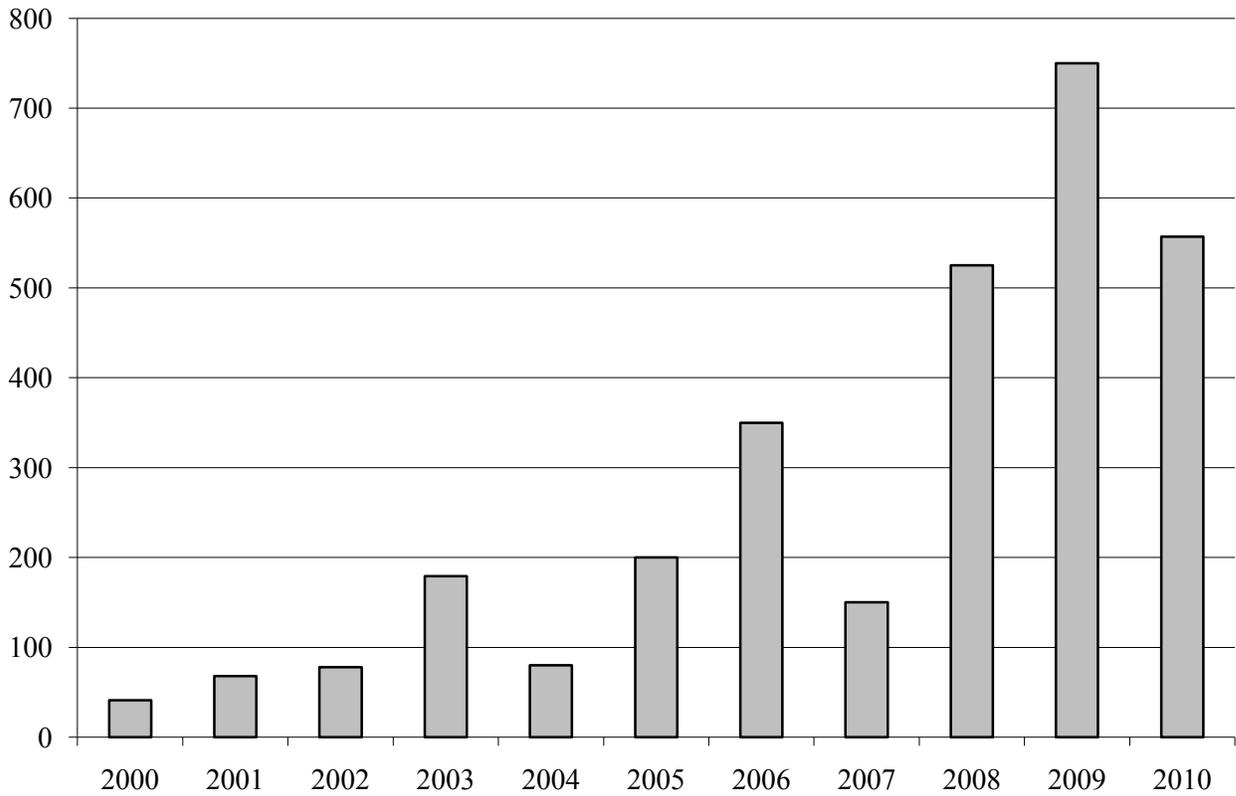
Several steps are involved to produce oysters. First, broodstock are harvested and conditioned by gradually increasing the water temperature until the oysters are ready to spawn. Water from the Choptank River is used so oysters can feed on natural algal cells found in the river. Larvae are placed in tanks and fed cultured algae until they reach the setting stage at which point they are set on oyster shells, which have been collected and cleaned by the hatchery program. At this time, the oyster is called a spat-on-shell. It takes several weeks for the spat to harden and be ready for planting in the bay or its tributaries. Overall, it takes two to four years for an oyster to reach a harvestable size. Since 2000, over 2 billion oysters have been planted on over 60 oyster bars.

While UMCES produced over 500 million spat-on-shell for a third consecutive year, the number of spat dropped from 750 million in 2009 to 557 million in 2010, as shown in **Exhibit 6**. This was due to the hatchery staff spending a significant amount of effort conducting research trials designed to help meet the larval demands associated with the new setting tanks located at the oyster pier. Short-term challenges associated with the new facility may also impact 2011 production.

The culturing process for any organism results in a certain mortality level. For the oyster hatchery, the mortality rate is approximately 30% during the nursery period. Relatively little data on the mortality rate resulting from planting the spat have been gathered, as this is a labor intensive exercise. UMCES plans to gather more data on survival as part of the new pier project. The mortality rate is expected to decrease since the pier will decrease the handling necessary to plant the spat.

Funding for the hatchery operations comes from two main sources: the Maryland Department of Natural Resources (DNR) and the National Oceanic and Atmospheric Administration (NOAA), including its Oyster Restoration Partnership. The six-year average funding for these agencies total \$409,167 from DNR and \$255,267 from NOAA for an overall average of \$664,434.

**Exhibit 6**  
**Spat-on-shell Production**  
**Calendar 2000-2010**



Source: University of Maryland Center for Environmental Science

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## *Current and Prior Year Budgets*

<b>Current and Prior Year Budgets</b>							
<b>University of Maryland Center for Environmental Science</b>							
<b>(\$ in Thousands)</b>							
				<b>Other</b>	<b>Total</b>		
<b>Fiscal 2010</b>	<b>General</b>	<b>Special</b>	<b>Federal</b>	<b>Unrestricted</b>	<b>Unrestricted</b>	<b>Restricted</b>	<b>Total</b>
	<b>Fund</b>	<b>Fund</b>	<b>Fund</b>	<b>Fund</b>	<b>Fund</b>	<b>Fund</b>	<b>Fund</b>
Legislative							
Appropriation	\$18,296	\$0	\$0	\$6,260	\$24,556	\$19,707	\$44,264
Deficiency							
Appropriation	0	0	0	0	0	0	0
Budget							
Amendments <sup>1</sup>	577		0	1,877	2,454	142	2,595
Cost							
Containment	-356	0		-249	-605	0	-605
Reversions and							
Cancellations <sup>1</sup>	0	0	0	-4,310	-4,310	-4,423	-8,733
<b>Actual</b>							
<b>Expenditures</b>	<b>\$18,517</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,577</b>	<b>\$22,095</b>	<b>\$15,426</b>	<b>\$37,521</b>
<b>Fiscal 2011</b>							
Legislative							
Appropriation	\$17,230	\$0	\$0	\$6,249	\$23,479	\$18,788	\$42,267
Cost							
Containment	0	0	0	0	0	0	0
Budget							
Amendments	719	695	0	-15	1,398	-234	1,164
<b>Working</b>							
<b>Appropriation</b>	<b>\$17,949</b>	<b>\$695</b>	<b>\$0</b>	<b>\$6,234</b>	<b>\$24,878</b>	<b>\$18,554</b>	<b>\$43,431</b>

<sup>1</sup>Reflects inclusion of funds associated with the allocation of the University of Maryland Biotechnology Institute's resources.

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

## **Fiscal 2010**

For fiscal 2010, general funds for UMCES increased \$0.2 million which included \$0.4 million for cost containment measures and \$64,041 from a USM reallocation of general funds among institutions. Additionally, \$0.6 million is associated with the reorganization of UMBI. Other unrestricted funds increased \$1.6 million through budget amendments. Increases included:

- \$0.8 million transfer from the fund balance;
- \$0.5 million from federal and State grants and contracts;
- \$0.4 million in federal indirect costs; and
- \$0.1 million in revenues related to the reorganization of UMBI.

There was a \$0.2 million decrease related to furlough savings.

Restricted funds increase of \$0.1 million is associated with the reorganization of UMBI.

Cancellations of unrestricted funds amounted to \$4.1 million, due to maintaining the vacancy level which led to a decrease in indirect cost recovery and reducing expenditures in an effort to offset the fund balance reduction.

Cancellations of restricted funds totaled \$4.4 million, due to lower than anticipated expenditures for contracts and grants.

## **Fiscal 2011**

For fiscal 2011, general funds increased \$0.7 million through a budget amendment related to the UMBI reorganization. Special funds, or the HEIF, increased \$0.7 million through a budget amendment as authorized in the fiscal 2011 budget bill. Other unrestricted funds decreased \$15,470 due to a decline in federal contract and grant activity.

Current restricted funds decreased \$0.2 million in federal contract and grant activity.

**Object/Fund Difference Report**  
**USM – University of Maryland Center for Environmental Science**

<u>Object/Fund</u>	<u>FY 10 Actual</u>	<u>FY 11 Working Appropriation</u>	<u>FY 12 Allowance</u>	<u>FY 11 - FY 12 Amount Change</u>	<u>Percent Change</u>
<b>Positions</b>					
01 Regular	262.44	258.94	258.94	0.00	0%
02 Contractual	37.00	37.00	37.00	0.00	0%
<b>Total Positions</b>	<b>299.44</b>	<b>295.94</b>	<b>295.94</b>	<b>0.00</b>	<b>0%</b>
<b>Objects</b>					
01 Salaries and Wages	\$ 24,554,986	\$ 25,783,167	\$ 26,730,370	\$ 947,203	3.7%
02 Technical and Spec. Fees	444,248	330,000	452,500	122,500	37.1%
03 Communication	274,375	329,634	282,927	-46,707	-14.2%
04 Travel	830,426	761,020	771,336	10,316	1.4%
06 Fuel and Utilities	1,643,141	2,292,770	2,202,366	-90,404	-3.9%
07 Motor Vehicles	1,145,285	1,384,876	1,337,343	-47,533	-3.4%
08 Contractual Services	5,856,378	8,239,867	7,769,149	-470,718	-5.7%
09 Supplies and Materials	1,841,004	1,855,372	1,845,772	-9,600	-0.5%
11 Equipment – Additional	381,083	1,128,600	1,080,968	-47,632	-4.2%
12 Grants, Subsidies, and Contributions	-387,290	31,250	44,450	13,200	42.2%
13 Fixed Charges	922,857	461,608	726,462	264,854	57.4%
14 Land and Structures	14,505	832,925	832,925	0	0%
<b>Total Objects</b>	<b>\$ 37,520,998</b>	<b>\$ 43,431,089</b>	<b>\$ 44,076,568</b>	<b>\$ 645,479</b>	<b>1.5%</b>
<b>Funds</b>					
40 Unrestricted Fund	\$ 22,094,666	\$ 24,877,571	\$ 25,358,885	\$ 481,314	1.9%
43 Restricted Fund	15,426,332	18,553,518	18,717,683	164,165	0.9%
<b>Total Funds</b>	<b>\$ 37,520,998</b>	<b>\$ 43,431,089</b>	<b>\$ 44,076,568</b>	<b>\$ 645,479</b>	<b>1.5%</b>

Note: The fiscal 2011 appropriation does not include deficiencies. The fiscal 2012 allowance does not include contingent reductions.