INTEGRATED OCEAN DRILLING PROGRAM
United States Implementing Organization

Consortium for Ocean Leadership, Inc.
Lamont-Doherty Earth Observatory of Columbia University
Texas A&M University

FY13 ANNUAL PROGRAM PLAN to NSF

For Time Period
1 October 2012 to 30 September 2013

Amount Proposed FY13: $67,980,170

Integrated Ocean Drilling Program
United States Implementing Organization

3 July 2012

Respectfully Submitted to:
National Science Foundation

David L. Divins
Director, Ocean Drilling Programs
Consortium for Ocean Leadership, Inc.
Washington, D.C. 20005

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1. EXECUTIVE SUMMARY

1.1. ANNUAL PROGRAM PLAN OVERVIEW

The IODP-USIO FY13 Annual Program Plan to the National Science Foundation (NSF) defines the U.S. Implementing Organization (USIO) scope of work for FY13 Integrated Ocean Drilling Program (IODP) activities and deliverables that are specifically covered under the U.S. Systems Integration Contract OCE-0352500. It is based on (1) the current mission forecast provided on 20 March 2012 for the USIO by the U.S. National Science Foundation (NSF), (2) the USIO operations schedule that was approved by the Operations Task Force (OTF) and Science Planning Committee in August 2010, and (3) the June 2011 OTF. The scope and budget justification of the activities described in the Annual Program Plan were derived from NSF guidance to the USIO and the outcomes from other related discussions. The USIO recognizes that the complex nature of IODP operations will require Annual Program Plans spanning operational years to establish priorities and to allow the procurement of long–lead time equipment and services.

In FY04, the Consortium for Ocean Leadership, Inc. (Ocean Leadership), then known as Joint Oceanographic Institutions, established subcontracts with the College of Geosciences at Texas A&M University (TAMU) through the Texas A&M Research Foundation (TAMRF) and with the Lamont-Doherty Earth Observatory (LDEO) of Columbia University, formally establishing the USIO.[1] In FY05, Ocean Leadership established a contract with Integrated Ocean Drilling Program Management International, Inc. (IODP-MI) for the science operating costs (SOC) of the USIO, which complemented the contract with NSF for platform operating costs (POC). Under guidance from NSF and IODP-MI, the USIO FY13 Annual Program Plan to IODP-MI was developed in consultation with the USIO subcontractors for inclusion in the IODP FY13 Annual Program Plan. The Annual Program Plan to NSF is written as a companion to the IODP-USIO FY13 Annual Program Plan to IODP-MI, submitted on 3 July 2012, which contains requests for USIO SOC and POC activities.

The USIO FY13 Annual Program Plan to NSF includes a discussion of the goals of the USIO, all responsibilities and deliverables, the operational schedule, definitions of projects, and the USIO organizational structure for all science operations and platform operations activities. This section of the Annual Program Plan provides budget definitions, assumptions and directives used to construct the Annual Program Plans, and a breakdown of the USIO institutional budget requests organized by institution (e.g., Ocean Leadership, LDEO, and TAMU) for each work breakdown element (WBE). These budget requests relate to the contractual relationships and fiscal reporting structure of the USIO as presented in quarterly reports delivered by the USIO.

In addition to the institutional summary provided in the Executive Summary, USIO tasks and budgets specific to NSF-supported activities are addressed in Sections 5–12 of this Annual Program Plan. Section 2 provides budget summary tables, Section 3 describes the organizational structure of the USIO as it relates to all USIO activities, and Section 4 describes scheduled expedition operations. The “Appendix: USIO IT Security Summary” provides information requested by NSF regarding information technology (IT) security policies, procedures, and practices as employed by the USIO to protect contractual research and education activities. The “Appendix: Recommended IODP-USIO Program of Insurance” provides information on risk management services provided to

[1] In this document, references to TAMU include TAMRF.

the USIO by TAMRF, including insurance policy monitoring, ongoing risk assessments, marine insurance negotiations, and claims settlement.

On behalf of the USIO and as outlined in this Annual Program Plan, TAMRF has contracted with Overseas Drilling Limited (ODL) for the services of the RV *JOIDES Resolution*. In support of the drilling vessel and with the approval of NSF and IODP-MI, the USIO will provide an array of science, operations, logging, engineering, information technology, technical, and publication services; laboratory facilities; core repositories; and administrative services necessary to support IODP. In addition, LDEO has contracted with Schlumberger Technology Corporation for the provision of downhole logging equipment and engineering support.

1.2. USIO FY13 ACTIVITIES

1.2.1. Summary of FY13 USIO Scope

The scope of activities associated with initial planning and preparation of IODP expeditions is similar to early IODP activities in terms of deliverables, challenges, and risks. In addition, the USIO will carry out postexpedition activities related to IODP expeditions and ongoing operational tasks (e.g., completing reports and technical documentation), completing work for all the implementing organizations (IOs) (e.g., producing scientific publications), conducting long-lead planning work in preparation for expeditions scheduled for future fiscal years, and providing all necessary environmental assessments for IODP expeditions conducted by the USIO.

1.3. USIO FY13 BUDGET DEFINITIONS

1.3.1. NSF Guidance

As called for in NSF Contract OCE-0352500, NSF provided guidance to the USIO that outlined the FY13 Mission Forecast for the USIO as the U.S. System Integration Contractor for IODP. The mission forecast included guidance to conduct two to four expeditions in FY13 and a budget range of $60,000,000–$68,000,000. This Annual Program Plan reflects the NSF guidance to conduct four expeditions and their associated costs**.**

1.3.2. FY13 USIO Budget Assumptions

The total budget request to NSF includes costs to support USIO platform operations; costs to fund science operations at sea and all costs in support of these operations such as planning, logistics, engineering science support, etc.; and costs that cover USIO efforts for education and outreach and associated management and administrative support.

The USIO has provided our best-effort estimate of FY13 costs in this plan. If additional funds are identified or cost avoidances gained during the fiscal year, the USIO may use them to purchase data management system equipment, drilling or science supplies, or high-priority capital replacement items in support of USIO deliverables. In addition, assumptions about the operations schedule are outlined in the “Expedition Operations” section.

Fuel price volatility is a major risk factor for completion of the scheduled operations. Assumptions were made using the best available data to determine a prudent estimate for FY13 fuel costs; however, market conditions are subject to fluctuations that may result in a need for supplemental funding during the period of operations.

1.3.3. USIO Budget Structure

The USIO budget request is partitioned into two programmatic categories: (1) USIO SOC in a budget submitted to IODP-MI for approval (see Appendix III. FY13 USIO Science Operating Costs by Institution) and (2) USIO Systems Integration Contract (SIC) costs in a budget submitted to NSF for approval. The SIC budget includes all POC and other Program integration costs (OPIC) in support of maintaining U.S. capability for continued scientific ocean drilling in IODP.

The USIO cost breakdown for FY13 is a request to IODP-MI for $2,991,353 in SOC expenses and a request to NSF for $67,980,170 in SIC expenses for USIO operations.

2. FY13 USIO BUDGET TABLES

2.1. INTRODUCTION

The budget summaries and detailed budgets in this section describe the overall USIO FY13 requests to NSF, subdivided by USIO institution. This information is provided to orient NSF Program Managers about the institutional breakdowns for the overall USIO budgets and provide a framework for interpreting fiscal data in quarterly reports delivered by the USIO.

In Section 2.2. FY13 USIO SIC WBE Budget Summary, the line-item total requested for each WBE is defined as the total of both the direct and indirect costs for that element. These costs are then separated out into total direct costs and indirect costs and administrative fees in summary totals that add up to the "grand total" for each USIO institution. Ocean Leadership and LDEO calculate indirect costs on a percentage of the direct costs using formulas described in the "Budget" subsections of each WBE section of this Annual Program Plan. The TAMU budget is structured with a single administrative fee that can be found in the Management and Administration element budget.

Section 2.3. FY13 USIO SIC Budget Detail provides an integrated institutional view of all budget requests detailed in the WBE sections of this Annual Program Plan. The detailed budget justification for these requests can be found in Sections 5–12 of this Annual Program Plan.

2.2. FY13 USIO SIC BUDGET SUMMARY

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Management and Administration	1,124,066	667,772	2,219,868	4,011,706
Technical, Engineering, and Science Support	0	5,454,775	55,091,221	60,545,996
Engineering Development	99,750	0	0	99,750
Core Curation	0	0	133,937	133,937
Data Management	0	774,305	1,649,375	2,423,680
Publications	0	0	84,840	84,840
Education	506,858	0	0	506,858
Outreach	173,404	0	0	173,404
Total FY13 USIO SIC Budget	**$1,904,077**	**$6,896,852**	**$59,179,241**	**$67,980,170**
Total Direct Costs	1,406,825	5,851,495	58,839,521	66,097,841
Indirect Costs and Administrative Fees	497,252	1,045,357	339,720	1,882,329
Grand Total FY13 USIO SIC Budget	**$1,904,077**	**$6,896,852**	**$59,179,241**	**$67,980,170**

Notes: Ocean Leadership Indirect Costs are included in the Management and Administration (M&A), Education, and Outreach elements. LDEO Indirect Costs are included in the M&A; Technical, Engineering, and Science Support; and Data Management elements. The TAMU Administrative Fee is included in the M&A element.

2.3. FY13 USIO SIC BUDGET DETAIL

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Management and Administration				
Salaries and Fringes	695,350	420,610	1,571,564	2,687,524
Travel	90,000	4,398	117,634	212,032
Supplies	5,000	4,400	17,575	26,975
Shipping	5,000	264	2,565	7,829
Communication	20,000	4,140	23,750	47,890
Contractual Services	0	0	0	0
Equipment	0	0	950	950
Other Direct Costs	5,000	2,640	146,110	153,750
Total Direct Costs	820,350	436,452	1,880,148	3,136,950
Modified Total Direct Costs (if applicable)	0	483,616	0	483,616
Indirect Costs or Administrative Fees	303,716	231,320	339,720	874,756
Total Management and Administration	**1,124,066**	**667,772**	**2,219,868**	**4,011,706**
Technical, Engineering, and Science Support				
Salaries and Fringes	0	865,277	6,130,705	6,995,982
Travel	0	85,776	1,065,000	1,150,776
Supplies	0	38,263	2,169,036	2,207,299
Shipping	0	11,447	937,120	948,567
Communication	0	5,460	264,685	270,145
Contractual Services	0	3,873,523	0	3,873,523
Equipment	0	0	1,102,500	1,102,500
Other Direct Costs	0	27,275	43,422,175	43,449,450
Day Rate	*0*	*0*	*30,952,267*	*30,952,267*
Fuel and Lubricants	*0*	*0*	*6,530,864*	*6,530,864*
Per Diem	*0*	*0*	*581,457*	*581,457*
Port Calls	*0*	*0*	*1,768,000*	*1,768,000*
Insurance	*0*	*0*	*1,835,427*	*1,835,427*
Travel—ODL	*0*	*0*	*1,015,070*	*1,015,070*
Other	*0*	*27,275*	*739,090*	*766,365*
Total Direct Costs	0	4,907,021	55,091,221	59,998,242
Modified Total Direct Costs (if applicable)	0	1,033,498	0	1,033,498
Indirect Costs or Administrative Fees	0	547,754	0	547,754
Total Technical, Engineering, and Science Support	**$0**	**$5,454,775**	**$55,091,221**	**$60,545,996**
Engineering Development				
Salaries and Fringes	0	0	0	0
Travel	44,000	0	0	44,000
Supplies	3,000	0	0	3,000
Shipping	0	0	0	0
Communication	3,000	0	0	3,000
Contractual Services	25,000	0	0	25,000
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Total Direct Costs	75,000	0	0	75,000
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	24,750	0	0	24,750
Total Engineering Development	**$99,750**	**$0**	**$0**	**$99,750**

Note: Other Direct Costs subcategories are shown on the detailed work breakdown element budgets. (Continued on next two pages.)

FY13 USIO SIC BUDGET DETAIL (CONTINUED)

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Core Curation				
Salaries and Fringes	0	0	94,249	94,249
Travel	0	0	15,375	15,375
Supplies	0	0	8,750	8,750
Shipping	0	0	6,250	6,250
Communication	0	0	875	875
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	8,438	8,438
Total Direct Costs	0	0	133,937	133,937
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Core Curation	**$0**	**$0**	**$133,937**	**$133,937**
Data Management				
Salaries and Fringes	0	474,638	988,053	1,462,691
Travel	0	1,354	106,625	107,979
Supplies	0	15,840	23,100	38,940
Shipping	0	1,260	805	2,065
Communication	0	1,980	23,985	25,965
Contractual Services	0	0	0	0
Equipment	0	5,600	139,830	145,430
Other Direct Costs	0	7,350	366,977	374,327
Total Direct Costs	0	508,022	1,649,375	2,157,397
Modified Total Direct Costs (if applicable)	0	502,422	0	502,422
Indirect Costs or Administrative Fees	0	266,283	0	266,283
Total Data Management	**$0**	**$774,305**	**$1,649,375**	**$2,423,680**
Publications				
Salaries and Fringes	0	0	64,840	64,840
Travel	0	0	20,000	20,000
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Total Direct Costs	0	0	84,840	84,840
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Publications	**$0**	**$0**	**$84,840**	**$84,840**

(Continued on next page.)

FY13 USIO SIC BUDGET DETAIL (CONTINUED)

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Education				
Salaries and Fringes	199,596	0	0	199,596
Travel	64,500	0	0	64,500
Supplies	4,000	0	0	4,000
Shipping	5,000	0	0	5,000
Communication	2,000	0	0	2,000
Contractual Services	55,000	0	0	55,000
Equipment	2,000	0	0	2,000
Other Direct Costs	49,000	0	0	49,000
Total Direct Costs	381,096	0	0	381,096
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	125,762	0	0	125,762
Total Education	**$506,858**	**$0**	**$0**	**$506,858**
Outreach				
Salaries and Fringes	71,379	0	0	71,379
Travel	22,000	0	0	22,000
Supplies	1,000	0	0	1,000
Shipping	3,000	0	0	3,000
Communication	1,000	0	0	1,000
Contractual Services	30,000	0	0	30,000
Equipment	0	0	0	0
Other Direct Costs	2,000	0	0	2,000
Total Direct Costs	130,379	0	0	130,379
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	43,025	0	0	43,025
Total Outreach	**$173,404**	**$0**	**$0**	**$173,404**
Grand Total Direct Costs	1,406,825	5,851,495	58,839,521	66,097,841
Indirect Costs/Administrative Fee	497,252	1,045,357	339,720	1,882,329
TOTAL FY13 USIO SIC BUDGET	**$1,904,077**	**$6,896,852**	**$59,179,241**	**$67,980,170**

3. ORGANIZATIONAL STRUCTURE

3.1. INTRODUCTION

Ocean Leadership has subcontracts with LDEO and with TAMU (through TAMRF) that formally establish the USIO for IODP. The USIO carries out all of its IODP deliverables through contracts with IODP-MI for science operating costs and with NSF for U.S. Systems Integration Contract costs. On behalf of the USIO, and as outlined in this Annual Program Plan, TAMRF has contracted with ODL for the services of the scientific ocean drilling vessel *JOIDES Resolution* for use as the USIO riserless drilling vessel. In addition, LDEO has contracted with Schlumberger for the provision of downhole logging equipment and engineering support.

The organizational structure employed by the USIO is designed to mirror the WBE accounting structure used by IODP and allows the USIO to effectively and efficiently carry out the mission of the USIO. This structure also aligns the organization to efficiently and economically provide the full array of science, operations, logging, engineering, information technology, technical, and publications services; laboratory facilities; core repositories; and administrative services deliverables.

3.2. USIO FTE ALLOCATION TABLES

The full-time equivalent (FTE) allocation tables present an accounting of the cumulative estimated effort as partitioned between the WBE(s) to which positions are assigned and as partitioned between SIC and other costs. The FTE allocation tables reflect actual FTEs as of 18 June 2012 plus projected FTEs for FY13. Staffing levels may change annually due to unanticipated changes in the operations schedule and/or scope of work. Other FTEs shown in Section 3.2.1. FY13 USIO FTE Allocation Summary also include effort devoted to providing assistance to the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) and Center for Deep Earth Exploration (CDEX) as noted in the "Technical, Engineering, and Science Support," "Data Management," and "Publications" chapters and to IODP-MI as noted in the "Publications" chapter.

3.2.1. FY13 USIO FTE Allocation Summary

NSF-supported FTEs by Work Breakdown Elements									
USIO Office	**M&A**	**TESS**	**ED**	**CC**	**DM**	**Pubs**	**Ed**	**Otrch**	**Total**
Ocean Leadership	3.64	0.00	0.00	0.00	0.00	0.00	2.00	0.75	6.39
LDEO	3.52	8.59	0.00	0.00	4.70	0.00	0.00	0.00	16.81
TAMU	4.28	63.00	0.00	1.00	15.30	1.40	0.00	0.00	84.98
Totals	**11.43**	**71.59**	**0.00**	**1.00**	**20.00**	**1.40**	**2.00**	**0.75**	**108.17**

Total FTEs by Expense Category			
USIO Office	**NSF**	**Other**	**Total**
Ocean Leadership	6.39	0.81	7.20
LDEO	16.81	1.12	17.93
TAMU	84.97	23.53	108.50
Totals	**108.17**	**25.45**	**133.63**

Notes: FTE = full-time equivalent; M&A = Maintenance and Administration; TESS = Technical, Engineering, and Science Support; ED = Engineering Development; CC = Core Curation; DM = Data Management; Pubs = Publications; Ed = Education; Otrch = Outreach; SIC = U.S. Systems Integration Contract costs; Other = efforts funded by other sources (e.g., science operating costs [SOC], San Andreas Fault Observatory at Depth [SAFOD], etc.). Student workers and TAMRF administrative support staff are not included in the table.

3.2.2. FY13 USIO FTE Allocation Detail

Position			% Work Breakdown Elements (NSF-supported FTEs)									% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
Bob Gagosian	President and Chief Executive Officer	Ocean Leadership	12.5%	0%	0%	0%	0%	0%	0%	0%	12.5%	12.5%	0%	12.5%
Colin Reed	Executive Assistant	Ocean Leadership	12.5%	0%	0%	0%	0%	0%	0%	0%	12.5%	12.5%	0%	12.5%
David Divins	Director, Ocean Drilling Programs	Ocean Leadership	75%	0%	0%	0%	0%	0%	0%	0%	75%	75%	25%	100%
Greg Myers	Senior Technical Expert	Ocean Leadership	81.25%	0%	0%	0%	0%	0%	0%	0%	81.25%	81.25%	18.75%	100%
Doug Fils	Technical Expert	Ocean Leadership	81.25%	0%	0%	0%	0%	0%	0%	0%	81.25%	81.25%	18.75%	100%
Margo Morell	Assistant Director, Ocean Drilling	Ocean Leadership	81.25%	0%	0%	0%	0%	0%	0%	0%	81.25%	81.25%	18.75%	100%
Julie Farver	Manager, Travel Services	Ocean Leadership	10%	0%	0%	0%	0%	0%	0%	0%	10%	10%	0%	10%
Matthew Wright	Manager, Communications	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	75%	75%	75%	0%	75%
Leslie Peart	Director, Education	Ocean Leadership	0%	0%	0%	0%	0%	0%	50%	0.0%	50%	50%	0.0%	50%
Sharon Cooper	Assistant Director, Education	Ocean Leadership	0%	0%	0%	0%	0%	0%	100%	0.0%	100%	100%	0.0%	100%
Jessie Swanseen	Administrative	Ocean	10%	0%	0%	0%	0%	0%	50%	0%	60%	60%	0%	60%
TOTAL Ocean Leadership FTEs			**3.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.00**	**0.75**	**6.39**	**6.39**	**0.81**	**7.20**
Dave Goldberg	Director	LDEO	44%	0%	0%	0%	0%	0%	0%	0%	44%	44%	6%	50%
Maria Bouzeas	Administrative Assistant	LDEO	88%	0%	0%	0%	0%	0%	0%	0%	88%	88%	12%	100%
Alberto Malinverno	Principal Scientist	LDEO	0%	37.5%	0%	0%	0%	0%	0%	0%	37.5%	37.5%	12.5%	50%
Mary Reagan	Deputy Director	LDEO	88%	0%	0%	0%	0%	0%	0%	0%	88%	88%	12%	100%
Simon Draper	Office Coordinator	LDEO	0%	42%	0%	0%	0%	0%	0%	0%	42%	42%	0%	42%

Notes: FTE = full-time equivalent, M&A = Maintenance and Administration, TESS = Technical, Engineering, and Science Support, ED = Engineering Development, CC = Core Curation, DM = Data Management, Pubs = Publications, Ed = Education, Otrch = Outreach, Other = efforts funded by other sources (e.g., science operating costs [SOC], San Andreas Fault Observatory at Depth [SAFOD], etc.); SIC = U.S. Systems Integration Contract costs; TBN = to be named. We anticipate filling all TBN positions before or during FY13. Student workers and TAMRF administrative support staff are not included in the table. (Continued on next seven pages.)

3.2.2. FY13 USIO FTE Allocation Detail (continued)

Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
Carl Brenner	Technical Services Specialist	LDEO	44%	0%	0%	0%	0%	0%	0%	0%	44%	44%	6%	50%
David Grames	Project Coordinator	LDEO	88%	0%	0%	0%	0%	0%	0%	0%	88%	88%	12%	100%
Sarah Davies	Logging Consortium Chief Scientist	LDEO	0%	8%	0%	0%	0%	0%	0%	0%	8%	8%	0%	8%
Eric Meissner	Manager, Engineering and Technical Services	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Walt Masterson	Engineering/Logistics Coordinator	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Stefan Mrozewski	Mechanical Engineer	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Gerardo Iturrino	Manager, Engineering and Technical Services	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Louise Anderson	Logging Staff Scientist	LDEO	0%	42%	0%	0%	0%	0%	0%	0%	42%	42%	0%	42%
Helen Evans	Logging Staff Scientist	LDEO	0%	29%	0%	0%	0%	0%	0%	0%	29%	29%	0%	29%
Annick Fehr	Logging Staff Scientist	LDEO	0%	17%	0%	0%	0%	0%	0%	0%	17%	17%	0%	17%
Gilles Guerin	Logging Staff Scientist	LDEO	0%	74.75%	0%	0%	0%	0%	0%	0%	74.75%	74.75%	0%	74.75%
Jenny Inwood	Logging Staff Scientist	LDEO	0%	17%	0%	0%	0%	0%	0%	0%	17%	17%	0%	17%
Johanna Lofi	Logging Staff Scientist	LDEO	0%	42%	0%	0%	0%	0%	0%	0%	42%	42%	0%	42%
Angela Slagle	Logging Staff Scientist	LDEO	0%	74.75%	0%	0%	0%	0%	0%	0%	74.75%	74.75%	0%	74.75%
Trevor Williams	Logging Staff Scientist	LDEO	0%	75%	0%	0%	0%	0%	0%	0%	75%	75%	0%	75%
Dan Quoidbach	Manager, Information Services	LDEO	0%	0%	0%	0%	83%	0%	0%	0%	83%	83%	17%	100%
Ted Baker	Systems Analyst/Database Administrator	LDEO	0%	0%	0%	0%	83%	0%	0%	0%	83%	83%	17%	100%

(Continued on next six pages.)

3.2.2. FY13 USIO FTE Allocation Detail (continued)

Position			% Work Breakdown Elements (NSF-supported FTEs)									% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
Golam Sarkar	Technical Analyst	LDEO	0%	0%	0%	0%	83%	0%	0%	0%	83%	83%	17%	100%
Cristina Broglia	Supervisor, Data Services	LDEO	0%	0%	0%	0%	100%	0%	0%	0%	100%	100%	0%	100%
Tanzhuo Liu	Senior Log Analyst	LDEO	0%	0%	0%	0%	100%	0%	0%	0%	100%	100%	0%	100%
Bob Arko	Database Developer	LDEO	0%	0%	0%	0%	21%	0%	0%	0%	21%	21%	0%	21%
TOTAL LDEO FTEs			**3.52**	**8.59**	**0.00**	**0.00**	**4.70**	**0.00**	**0.00**	**0.00**	**16.81**	**16.81**	**1.12**	**17.93**
Brad Clement	Director	TAMU	47.5%	0%	0%	0%	0%	0%	0%	0%	47.5%	47.5%	2.5%	50%
Diane Bertinetti	Administrative Assistant	TAMU	95%	0%	0%	0%	0%	0%	0%	0%	95%	95%	5%	100%
Bill Wasson	Manager, IODP Business Services	TAMU	95%	0%	0%	0%	0%	0%	0%	0%	95%	95%	5%	100%
Adam Davidson	Supervisor, IODP Human Resources	TAMU	95%	0%	0%	0%	0%	0%	0%	0%	95%	95%	5%	100%
Ollie Berka	Human Resources Representative	TAMU	95%	0%	0%	0%	0%	0%	0%	0%	95%	95%	5%	100%
John Firth	Curator	TAMU	0%	0%	0%	25%	0%	0%	0%	0%	25%	25%	75%	100%
Phil Rumford	Superintendent, GCR	TAMU	0%	0%	0%	25%	0%	0%	0%	0%	25%	25%	75%	100%
Chad Broyles	Curatorial Specialist II	TAMU	0%	0%	0%	25%	0%	0%	0%	0%	25%	25%	75%	100%
Gemma Barrett	Curatorial Specialist II	TAMU	0%	0%	0%	25%	0%	0%	0%	0%	25%	25%	75%	100%
Mitch Malone	Assistant Director/Manager, Science Operations	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Janice Muston	Administrative Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
William Rinehart	Supervisor, Engineering Services	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Kevin Grigar	Senior Staff Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Bob Aduddell	Staff Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Liping Chen	Senior Design Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Dean Ferrell	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Mike Meiring	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Eric Schulte	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%

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3.2.2. FY13 USIO FTE Allocation Detail (continued)

Position			% Work Breakdown Elements (NSF-supported FTEs)									% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
Karen Graber	Staff Researcher	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Mike Storms	Supervisor, Operations Support	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Steve Midgley	Operations Superintendent	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Operations Superintendent	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Dave Lehnert	Materials Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Robert Mitchell	Marine Logistics Coordinator	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Tyrone Brashear	Materials Technician	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Sandy Dillard	Shipping and Receiving Coordinator	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Adam Klaus	Supervisor, Science Support	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Carlos Alvarez-Zarikian	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Peter Blum	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Katerina Petronotis	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Nicole Stroncik	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Jay Miller	Manager, Technical and Analytical Services	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
John Miller	Business Coordinator II	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
David Houpt	Supervisor, Analytical Systems	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Lisa Brandt	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Trevor Cobine	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Thomas Gorgas	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Maggie Hastedt	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Sandra Herrmann	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Yulia Vasilyeva	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%

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3.2.2. FY13 USIO FTE Allocation Detail (continued)

Position			% Work Breakdown Elements (NSF-supported FTEs)									% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
TBN	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Michael Bertoli	Research Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
John Beck	Senior Imaging Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Bill Crawford	Senior Imaging Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Brad Julson	Supervisor, Technical Support	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Roy Davis	Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Bill Mills	Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Tim Bronk	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Lisa Crowder	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Chieh Peng	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Steve Prinz	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Heather Barnes	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Ted Gustafson	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Kristin Hillis	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Erik Moortgat	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Etienne Claassen	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%

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3.2.2. FY13 USIO FTE Allocation Detail (continued)

Position			% Work Breakdown Elements (NSF-supported FTEs)									% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
Randy Gjesvold	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Jurie Kotze	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Garrick Van Rensburg	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Jim Rosser	Manager, Development, IT, and Databases	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Denise Ponzio	Information Services Assistant	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Phil Gates	Supervisor, Information Technology Support	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Cesar Flores	Senior Systems Administrator	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Jennifer Hutchinson	Systems Administrator	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Matt Nobles	Systems Administrator	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Mike Petersen	Senior Systems Support Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Tiffany Bloxom	Systems Support Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
James Cordray	Systems Support Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Chuck Haddick	Systems Support Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Mike Hodge	Associate Marine Computer Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%

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3.2.2. FY13 USIO FTE Allocation Detail (continued)

Position			% Work Breakdown Elements (NSF-supported FTEs)									% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
Grant Banta	Marine Computer Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Michael Cannon	Marine Computer Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Andrew Trefethen	Marine Computer Specialist	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Paul Foster	Supervisor, Applications Development	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
David Fackler	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Dwight Hornbacher	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Timothy Blaisdell	Applications Developer III	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Algie Morgan	Applications Developer III	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
James Zhao	Applications Developer III	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Applications Developer II	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Rakesh Mithal	Supervisor, Databases/Archives	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Saranavan Nagarajan	Senior Software Applications Developer	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Don Sims	Data Analyst	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
TBN	Systems Analyst II	TAMU	0%	0%	0%	0%	85%	0%	0%	0%	85%	85%	15%	100%
Angie Miller	Manager, Publication Services	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Lorri Peters	Supervisor, Editing	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Ginny Lowe	Editor IV	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Jenni Hesse	Editor III	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Shana Lewis	Editor III	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%

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3.2.2. FY13 USIO FTE Allocation Detail (continued)

Position			% Work Breakdown Elements (NSF-supported FTEs)									% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total	SIC	Other	Total
Amy McWilliams	Editor III	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Jaime Gracia	Supervisor, Production	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Patrick Edwards	Production Specialist III	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Kenneth Sherar	Production Specialist II	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Crystal Wolfe	Production Specialist II	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Ann Yeager	Distribution Specialist	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Debbie Partain	Supervisor, Graphics	TAMU	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	80%	100%
Tim Fulton	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	80%	100%
Rhonda Kappler	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	80%	100%
Laura Koehler	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	80%	100%
Paul Pleasant	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	80%	100%
Alyssa Stephens	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	80%	100%
Jean Wulfson	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	80%	100%
Gigi Delgado	Senior Publications Coordinator	TAMU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
TOTAL TAMU FTEs			**4.28**	**63.00**	**0.00**	**1.00**	**15.30**	**1.40**	**0.00**	**0.00**	**84.97**	**84.97**	**23.53**	**108.50**
GRAND TOTAL USIO FTEs			**11.43**	**71.59**	**0.00**	**1.00**	**20.00**	**1.40**	**2.00**	**0.75**	**108.17**	**108.17**	**25.45**	**133.63**

4. EXPEDITION OPERATIONS

4.1. INTRODUCTION

This Annual Program Plan is based on the operations schedule published 13 January 2012, including two non-IODP periods.

1 August–23 October 2012	Non-IODP
23 October–11 December 2012	Costa Rica Seismogenesis Project 2
11 December 2012–12 February 2013	Hess Deep Plutonic Crust
12 February–25 May 2013	Non-IODP
25 May–29 May 2013	SCIMPI Test Deployment
29 May–29 July 2013	Southern Alaska Margin Tectonics, Climate, and Sedimentation
29 July–20 August 2013	Transit
20 August–28 September 2013	Asian Monsoon

4.2. OPERATIONS

4.2.1. Expedition 344: Costa Rica Seismogenesis Project 2

Proposed Operations

Expedition 344: Costa Rica Seismogenesis Project (CRISP) 2 is designed to elucidate the processes that control nucleation and seismic rupture of large earthquakes at erosional subduction zones. CRISP is located at the only known seismogenic zone at an erosional convergent margin within reach of scientific drilling, where a low sediment supply, fast convergence rate, abundant seismicity, subduction erosion, and a change in subducting plate relief along strike offer excellent opportunities to better understand earthquake nucleation and rupture propagation. This project complements other deep fault drilling (San Andreas Fault Observatory at Depth and Nankai Trough Seismogenic Zone Experiment) and investigates the first-order seismogenic processes common to most faults and those unique to erosional margins. Expedition 344 is based in part on CRISP Program A (IODP Proposal 537A-Full5), which is the first step toward the deep riser drilling through the seismogenic zone. This expedition follows the operations conducted during Expedition 334 (CRISP 1) and will focus on constraining the boundary conditions of lithology, fluid flow, and thermal structure that trigger unstable slip in the seismogenic zone along a drilling transect at two slope sites. These slope sites may also serve as pilot holes for potential future proposed riser drilling to reach the aseismic/seismic plate boundary.

Logistics

Operations for Expedition 344 require an estimated 49 days (2 in port, 3 in transit to and from the first/last sites, and 44 in operations).

4.2.2. Expedition 345: Hess Deep Plutonic Crust

Proposed Operations

Expedition 345: Hess Deep Plutonic Crust will be the second offset drilling program at the Hess Deep Rift to study crustal accretion processes at the fast-spreading East Pacific Rise. The expedition will take advantage of well-surveyed crustal exposures to recover the first cores of young, primitive plutonic rocks that comprise the lowermost ocean crust. The principal objective for drilling at Hess Deep is to test competing hypotheses of magmatic accretion and hydrothermal processes at fast-

spreading mid-ocean ridges. These hypotheses make predictions that can only be tested with drill core, including the presence or absence of modally layered gabbro, presence or absence of systematic variations in mineral and bulk rock compositions, and extent and nature of hydrothermal alteration and deformation. The highest priority for drilling at the Hess Deep Rift will be to sample one or more 100 to ≥250 m long sections of primitive gabbroic rocks. Three primary drill sites have been identified; however, if coring proceeds well in the first or second of these sites, it will be continued as long as possible in order to obtain the longest possible continuous sample. The alternate site is located near Ocean Drilling Program (ODP) Site 894, where shallow-level gabbros are exposed. This plan differs slightly from Proposal 551, as there is no alternate site in upper mantle peridotite. Drilling, coring, and logging operations may be challenging during the Hess Deep expedition because of water depths >4,800 m, a thin sediment cover, and, potentially, unstable basement formations.

Logistics

Operations for the Expedition 345 are budgeted based on an estimated 63 days (7 in port, 11 in transit, and 45 in operations).

4.2.3. SCIMPI Test Deployment

Proposed Operations

The Simple Cabled Instrument for Measuring Parameters In Situ (SCIMPI) is a seafloor observatory with a modular system to make long-term subsurface time-series measurements of temperature, pressure, and resistivity at multiple depths in IODP boreholes. The SCIMPI will be deployed for testing on the Cascadia margin, which is an excellent test environment because of coring and logging conducted during Expedition 311 and the accessibility of the area for post-deployment access.

Logistics

Operations for the SCIMPI test are budgeted based on 4 days (2 days in transit and 2 days in operations)

4.2.4. Expedition 341: Southern Alaska Margin Tectonics, Climate, and Sedimentation

Proposed Operations

Expedition 341: Southern Alaska Margin Tectonics, Climate, and Sedimentation will drill a cross-margin transect to investigate the northeast Pacific continental margin sedimentary record formed during orogenesis amid a time of significant global climatic deterioration in the Pliocene–Pleistocene, which led to the development of the most aggressive erosion agent on the planet: a temperate glacial system. Expedition 341 will use sedimentary provenance and paleoclimatic, glacimarine, and structural sedimentary indicators tied to a multicomponent chronology to generate detailed records of changes in the locus and magnitude of glacial erosion, degree of tectonic shortening, and sediment and freshwater delivery to the coastal ocean; their impact on oceanographic conditions in the Gulf of Alaska; and the resulting continental margin stratigraphic record on the interaction of these processes.

Logistics

Operations for the Expedition 341 are budgeted based on an estimated 61 days (3 days in port, 8 days in transit, and 50 in operations).

4.2.5. Expedition 346: Asian Monsoon

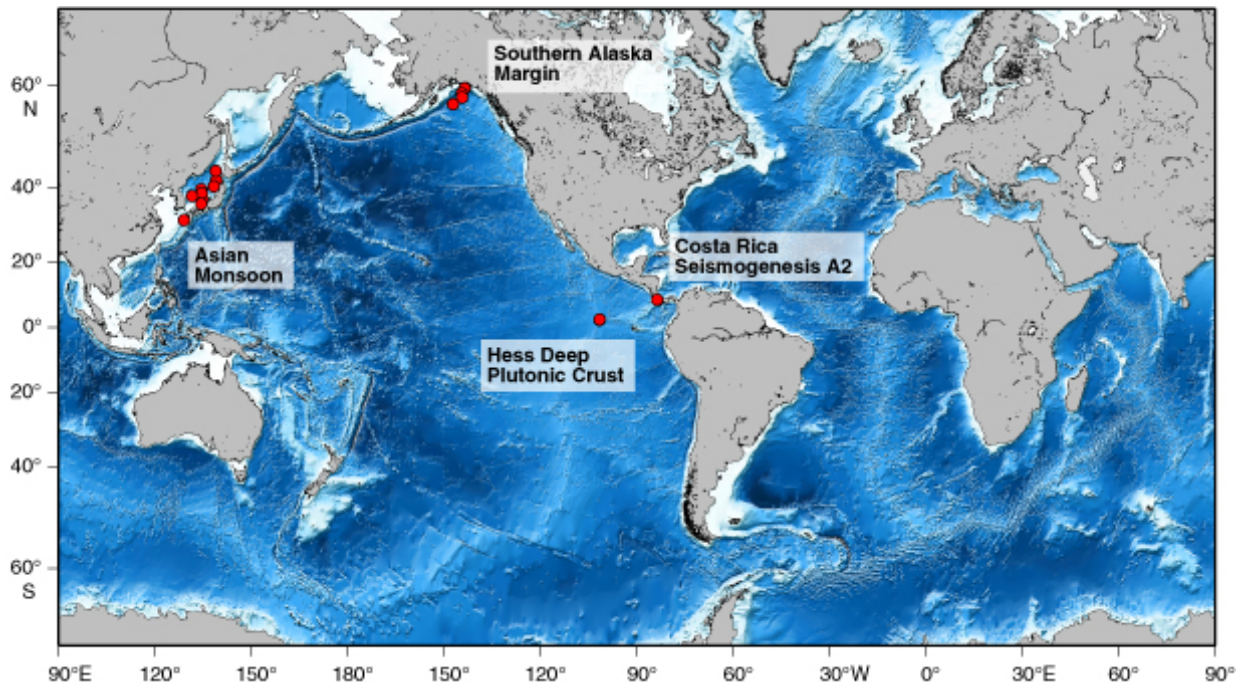
Proposed Operations

Expedition 346: Asian Monsoon will drill two latitudinal transects in the Japan Sea to monitor behaviors of the westerly jet and winter monsoon and will drill at the northern part of the East China Sea to monitor the Yangtze River discharge history that should reflect variations in summer monsoon intensity. The southern transect will be used to reconstruct the behavior of the subpolar front and examine its relationship with the westerly jet and sea level changes. The northern transect will be used to identify ice-rafted debris events and reconstruct temporal variation in its southern limit as winter monsoon proxies. The proposed drilling is designed to (1) specify the onset timing of orbital and millennial-scale variability of East Asian monsoon and westerly jet and reconstruct their evolution process and spatial variation patterns and (2) reconstruct orbital and millennial-scale paleoceanographic changes in the Japan Sea during the last 5 m.y. to clarify the linkage between the paleoceanographic changes in the Japan Sea and the variability of East Asian monsoon and/or sea level changes. Comparison of the results with the uplift history of the Himalayan and Tibetan Plateaus will enable us to test the idea that topographic evolution of the plateaus was responsible for creation of bimodality in westerly jet circulation that caused amplification of millennial-scale variability of Asian monsoon.

Logistics

Operations for Expedition 346 are budgeted based on an estimated 39 days (1 in port, 2 in transit, and 36 in operations).

4.3. IODP-USIO FY13 SITE MAP



4.4. EXPEDITION OPERATIONS BUDGET

Expense Category	Non-IODP	Expedition 344T: Transit	Expedition 344: CRISP-2	Expedition 345: Hess Deep	Expedition 341T: Transit	Non-IODP	Expedition 341: South Alaska	Expedition 346T: Transit	Expedition 346: Asian Monsoon	Non-IODP	Total
	18 days[1]	**4 days**	**49 days**	**61 days**	**21 days**	**87 days[2]**	**61 days**	**22 days**	**39 days**	**3 days[3]**	**365 days**
Ship Operations											
Day Rate	1,480,831	338,284	4,139,372	5,172,316	1,795,709	7,283,480	5,243,209	1,884,131	3,354,374	251,153	30,942,860
Communications[4]	11,643	2,587	31,694	39,455	13,583	56,272	39,455	14,230	25,226	1,940	236,085
Fuel and Lubricants[5]	0	0	0	1,409,033	674,814	792,094	1,590,757	628,143	913,012	523,011	6,530,864
Per Diem	20,749	4,836	94,130	117,182	23,289	95,980	117,182	27,426	74,920	5,763	581,457
Port Calls[6]	110,000	25,000	35,000	194,000	175,000	492,000	164,000	244,000	20,000	309,000	1,768,000
Insurance[7]	70,340	21,998	269,478	335,473	115,491	339,979	335,473	120,990	214,482	11,723	1,835,427
Travel—ODL[8]	0	0	0	191,386	85,513	283,863	177,990	64,193	113,797	98,328	1,015,070
Expenses—ODL[9]	2,219	493	6,041	7,521	2,589	10,726	7,521	2,712	4,808	370	45,000
Contractual Services											
Schlumberger	175,572	39,016	477,946	594,994	204,834	848,599	594,994	214,588	380406	29,263	3,560,212
Total[10]	**1,871,354**	**432,214**	**5,053,661**	**8,061,360**	**3,090,822**	**10,202,993**	**8,270,581**	**3,200,413**	**5,101,025**	**1,230,552**	**46,514,975**

[1] Only the FY13 portion of the non-IODP period beginning 1 August 2012 is included in this budget.

[2] Non-IODP period is scheduled to be in Victoria, British Columbia (Canada) from 10 February through 28 May 2013.

[3] The last currently scheduled expedition (Asian Monsoon) ends 27 September 2013.

[4] Communications expenses include Marisat costs that will be incurred when very small aperture terminal (VSAT) service is unavailable because of the vessel's location.

[5] Fuel required for the FY12 portion of the first non-IODP period, Expedition 344T (Transit), and Expedition 344 (CRISP-2) will be purchased with FY12 funds.

[6] Port call costs for the FY12 portion of the first non-IODP period will be charged to FY12 funds.

[7] Insurance estimates are based on actual FY12 premiums plus a 20% inflation factor. In addition, Sections 1 and 2 of the Hull & Machinery policy premium reflect a 50% discount allowed during the non-IODP periods.

[8] Cost of crew change for crew on board for more than a single expedition (e.g., 341T [Transit] and part of the non-IODP period) are apportioned based on the percentage of total days on board for each of the two activities.

[9] Other expenses—ODL includes expenses for possible medical evacuations and supplies and maintenance costs incurred by ODL that are not included in the day rate. The total budgeted costs of $45,000 are distributed based on the duration of expedition activity as a percentage of the total budgeted period. For example, Hess Deep costs are 61/365 of $45,000.

[10] Elimination of Expeditions 346: Asian Monsoon and 345: Hess Deep would result in net savings of $2.3M and $2.0M, respectively.

Expedition costs included in this budget cover SOC and POC activities in support of the USIO FY13 expeditions, as follows:

Salaries and Fringes—Salaries, fringes, and sea pay, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Expedition-based salaries, fringes, and sea pay.

Travel—Transportation, per diem, lodging, and other associated costs.

Travel expenses for all USIO staff who will work at port calls, sail on FY13 expeditions and initial FY14 expeditions, and transit and/or work on the ship during non-IODP periods.

Supplies—Office and operational supplies.

Safety equipment and operational, laboratory, logistic, and shipping supplies for the FY13 expeditions and long-lead supplies for FY14 expeditions.

Shipping—Postage, express mail, and freight.

Costs for shipments to and from FY13 expeditions.

Communication—Satellite, telephone, and fax charges.

Cost for very small aperture terminal (VSAT) communication and Marisat communication to and from the *JOIDES Resolution.*

Contractual Services—Consultant and contract services.

Subcontract to members of the Logging Consortium (University of Montpellier, France; University of Leicester, United Kingdom; University of Aachen, Germany) to provide shipboard participation of Logging Staff Scientists, liaisons to selected panels as needed, and scientific support for Program planning and logging-related projects are included in the SOC budget. Subcontract to Schlumberger for provision of a standard suite of tools, engineer services, software support, and mobilization services; specialty tools for use on individual cruises as needed; a dedicated engineer on the ship for each cruise and support from the base of operations; and the services of a district engineer, staff engineer, electronics technician, and special services engineer on an as-needed basis (part-time to nearly full-time support). Costs (including shipping charges) related to the leasing of equipment needed for wireline fishing, back-off and severing services, and the day rate and travel expenses for the Schlumberger engineer are included in the POC budget. Tool insurance for the deployment of downhole logging tools is included in the Schlumberger subcontract and is provided on a day rate basis. Other contracts provide test and calibration services for analytical equipment and downhole measurement tools. In addition, costs are budgeted for contractual services from LGL Limited associated with environmental evaluation for marine mammal permitting associated with seismic operations.

Equipment—Procurement, upgrading, or fabrication of equipment with an acquisition cost of more than $5,000, plus those items as defined by Columbia University and TAMRF policy.

Costs associated directly with equipment (computer, scientific, and drilling) intended solely for use on the ship over a period of time greater than one expedition, equipment purchased for a specific expedition, and pro-rata cost of shore-based equipment used partially to support expedition activities.

***Other Direct Costs*—**Costs not covered in other categories.

Day Rate—Vessel staffing for the subcontractor's sailing crew and drilling personnel.

Cost of staffing the ship, including the sailing crew and drilling personnel, but not including the cost of the USIO personnel or scientists aboard the ship. The day rate varies according to the mode of the ship, which is operating (drilling or cruising) or standing by (in port). Although it is a fixed rate per day, the day rate is adjusted for changes in the Consumer Price Index-Urban (CPI-U) and Employment Cost Index (ECI). The amount is based on 365 days, which includes all or part of three non-IODP periods: the final 18 days of a 64-day non-IODP period (1–18 October 2012), an 87-day non-IODP period (3 March–29 May 2013), and the first three days of a 61-day non-IODP period (28–30 September 2013). Curaçao, Netherlands Antilles has been tentatively designated as the location for the first non-IODP period; Victoria, British Columbia (Canada), for the second non-IODP period; and Busan, Korea, for the non-IODP period beginning at the end of FY13 on 28 September 2013. The operating/transiting and standby day rates, respectively, are $84,571 and $82,268 (1 October–31 December 2012), $84,942 and $83,627 (1–31 January 2013), and $86,070 and $83,718 (1 February–30 September 2013). The budget allows for one ECI base adjustment of 2.519429%, effective 1 January 2013, and one CPI-U based adjustment of 2.497781%, effective 1 February 2013.

Fuel and Lubricants—Fuel for the riserless vessel.

FY13 ship operations fuel purchases are estimated at a total of 5,786 metric tons: 1,266 metric tons in Puntarenas, Costa Rica; 1,318 metric tons in Balboa, Panama; 1,363 metric tons in Victoria, British Columbia (Canada), in May 2013 and another 1,320.5 metric tons at that same location in July 2013; and 518.5 metric tons in Busan, Korea, on the commencement of a 61-day maintenance period scheduled to begin 28 September 2013. Price per metric ton is based on prices quoted by Bunkerworld on 7 June 2012 for the locations specified, plus a 10% inflation factor. **Note: If inflation exceeds 10%, we will not be able to execute the full expedition schedule.**

Per Diem—Shipboard catering.

Costs associated with meals and berthing on the vessel and cleaning of the laboratory stack. The estimate is based on a shipboard party of 60 participants at $31.88/day/person for all nontransit and nonmaintenance periods. The number of personnel on board for transit periods and non-IODP periods was estimated based on a staffing schedule distributed on 1 March 2012 and varies from 8 to 24 at a cost of $97.38 day/person to $50.03 day/person (the lower the number on board, the higher the daily rate per person). Also included is $3,000 for meals served during port calls (including non-IODP periods) to all nonseagoing personnel. This category does not include per diem for the ship subcontractor's sailing crew and drilling personnel, as they are accounted for in the day rate unless charged as a reimbursable (see "Day Rate" above).

Port Calls—Vessel agent's expenses and subcontractor freight.

Locations have a definite effect on the port call cost, which covers agents' expenses and freight associated with resupplying the ship. During the deployment and first expedition port calls, materials and equipment are off-loaded and supplies and equipment are loaded for the upcoming period's activities. ODL is reimbursed for port agent charges and shipment of food and related supplies. Shipment of cores, drilling equipment, and laboratory supplies is arranged by TAMU and paid for by TAMRF. Similarly, TAMRF purchases all drilling equipment and laboratory supplies necessary for meeting the objectives of the expedition. Port calls by expedition are

based on the estimated costs for the port from which the expedition begins and any interim port calls occurring prior to its conclusion, as identified in the current ship schedule. Note that this category also includes the lodging and per diem costs for ODL crew changes, based on the total number of rooms required and a breakfast and dinner for each crew person occupying a room, all according to federal rates.

Port calls are scheduled for Curaçao (the final 18 days of tie-up/non-IODP period at beginning of FY13); Balboa, Panama (2 days); Puntarenas, Costa Rica (5 days); Balboa, Panama (5 days); Victoria, British Columbia (Canada) (87 days for the non-IODP period and 3 days for redeployment preparation); Victoria, British Columbia (Canada)/TBD (4 days); Hakodate, Japan (1 day) and Busan, Korea (5 days).

Insurance—Annual insurance premiums for subcontractor and TAMRF.

Subcontractor's premium costs for All Risks Marine Hull and Machinery (H&M) and Removal of Wreck (ROW) insurance and TAMRF premium costs for General and Automobile Liability, Workers Compensation, Cargo, Third Party Property (Equipment), Excess Liability, Control of Well and Seepage and Pollution Liability, Charterers Legal Liability, and Contractor's Pollution Liability–Gradual coverage for the vessel. All premium amounts are based on 365 days of coverage, and the premiums for Sections 1 and 2 of the Hull & Machinery coverage are discounted 50% during the non-IODP periods, which total 108 days in FY13.

Travel–ODL—Subcontractor transportation.

Airfare for ship subcontractor's crews to/from six scheduled crew changes— Puntarenas, Costa Rica (Hess Deep); Balboa, Panama (transit/non-IODP period); three in Victoria, British Columbia (Canada) (non-IODP period, South Alaska, and transit/Asian Monsoon). The estimate is based on a crew of 60 personnel with various domestic and international origin fly points arriving and departing each port call. Expedition costs are based on round trip airfares for the ship subcontractor's sailing crew and drilling personnel to travel to the port call where the expedition begins and return from the port call where the expedition ends.

Relocation—Relocation costs for new employees (TAMU).

Business Conferences—Incidental expenses associated with meetings hosted by the USIO.

Expenses for pre-expedition, postexpedition, and planning meetings.

Services—Expert assistance.

Cost to cover miscellaneous charges payable to the ship's subcontractor, drill pipe maintenance, wireline severing charges, transfer fees, weather reports, and annual physical examinations for seagoing personnel.

Other Expenses—ODL—ODL costs not covered in other categories.

Costs for possible medical evacuations ($25,000) and miscellaneous reimbursable supplies and maintenance costs ($20,000) payable to the ship subcontractor.

Recruiting—Employee recruitment.

Local advertisements, advertisements in science and trade journals, and other costs related to filling seagoing positions.

Maintenance and Repair—Maintenance agreements and equipment repairs.

Maintenance and repair of drilling, coring, logging, operations, and laboratory and safety equipment.

***Indirect Costs*—**Administrative and financial costs associated with operating the Program.

For LDEO, indirect costs at 53% are assessed on all charges except permanent equipment. In addition, subcontracts are charged indirect costs on the first $25,000 of each contract. The indirect costs for subcontracts established prior to FY13 have already been paid, so these subcontracts are not subject to indirect cost during FY13. Modified total direct costs (MTDCs) are the total direct costs minus these exceptions.

5. MANAGEMENT AND ADMINISTRATION

5.1. GOALS

The USIO provides integrated management that is led by the contractor (Ocean Leadership) in coordination with the other two USIO members (LDEO and TAMU).

Goals of the USIO management staff include planning, coordinating (with other IODP-related entities), overseeing, reviewing, and reporting on IODP activities.

5.2. DELIVERABLES IN FY13

- Annual Program Plan: Develop and assure implementation.
- Quarterly and Annual Reports: Develop quarterly and annual reports, including financial reports.
- Reporting and Liaison Activities: Report to and liaise with funding agencies and with IODP-related agencies (e.g., the Science Advisory Structure [SAS]), Program Member Offices, and other national organizations. Participate in SAS panels, IODP-MI task forces, working groups, and so on.
- Contract Services: Provide contract services for IODP-related activities.
- Legacy Documentation: Routinely archive electronic copies of documents and reports produced by the USIO on behalf of IODP.

5.3. BUDGET

Management and Administration			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	2,644,410	43,114	2,687,524
Travel	212,032	0	212,032
Supplies	26,975	0	26,975
Shipping	7,829	0	7,829
Communication	47,890	0	47,890
Contractual Services	0	0	0
Equipment	950	0	950
Other Direct Costs	153,750	0	153,750
Relocation	*10,000*	*0*	10,000
Training	*65,670*	*0*	65,670
Business Conferences	*2,850*	*0*	2,850
Insurance	*5,700*	*0*	5,700
Services	*27,210*	*0*	27,210
TAMU Computing Services	*20,900*	*0*	20,900
Equipment Rental	*1,140*	*0*	1,140
Furniture	*6,175*	*0*	6,175
Recruiting	*5,500*	*0*	5,500
Maintenance and Repair	*4,750*	*0*	4,750
Library	*3,855*	*0*	3,855
Total Direct Costs	3,093,836	43,114	3,136,950
Modified Total Direct Costs (if applicable)	483,616	0	483,616
Indirect Costs or Administrative Fees	860,528	14,228	874,756
Total Management and Administration	**$3,954,364**	**$57,342**	**$4,011,706**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—Salaries, fringes, and sea pay, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Salaries and fringes for staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables). Also includes salaries and fringes for 14 TAMRF FTEs who provide administrative support.

Travel—Transportation, per diem, lodging, and other associated costs.

USIO travel to SAS panel meetings, task force meetings, IO meetings, USIO meetings, workshops, contractor meetings, scientific and technical meetings, national and international meetings; Ocean Leadership and TAMU travel to port calls; LDEO travel to subcontractor site visits and professional training courses and meetings; and TAMU travel to insurance meetings.

Supplies—General office supplies and expendables and operational supplies.

General office supplies, printer and copier supplies, and electronic media and other computer supplies with an acquisition cost of less than $1,000 (TAMU).

Shipping—Postage, express mail, courier services, and freight.

General postage and express mail/courier services for regular correspondence.

Communication—Telephone and fax charges.

Standard telephone line charges, long distance charges, and fax charges.

Contractual Services—Consultant and contract services.

Printing and copying of materials. Consultant services in support of network and video conferencing equipment (Ocean Leadership).

Equipment—None budgeted.

Other Direct Costs—Costs not covered in other categories.

Relocation—Relocation costs for new employees.

Relocation costs for new employees (TAMU).

Training—Registration, transportation, per diem, and lodging expenses related to professional training.

Registration and travel costs for professional training courses and meetings (TAMU).

Business Conferences—Incidental expenses associated with meetings hosted by the USIO.

Expenses for refreshments provided for various business meetings and catering services occasionally required for on-site training and professional consultant services.

Insurance—Annual insurance premiums.

Program’s portion of Director’s and Officer’s corporate insurance based on the number of officers at TAMRF, when compared to the TAMRF corporate total.

Services—Expert assistance.

Lease on off-premises records storage facility, partial cost of other support services, visitor parking permits, printing services, TAMU Physical Plant services, and temporary labor.

TAMU Computing Services—Use of TAMU's financial and management information system (FAMIS).

Program's share of costs based on lines of entry for use of FAMIS in conducting the fiscal activities of TAMU.

Equipment Rental—Rental of equipment when it is more economical to rent than purchase.

Rental of equipment for conferences.

Furniture—Office furniture.

Office furniture and storage cabinets for use in office and at external storage facilities.

Recruiting—Employee recruitment.

Cost of newspaper and internet advertisements of vacant positions.

Maintenance and Repair—Maintenance agreements and equipment repairs.

Equipment service agreements on copiers; replacement parts and service for fax machines, shredders, and so on.

Library—Books, journals, and other resources.

Books, journals, resources, and subscriptions to professional materials.

Indirect Costs—Administrative and financial costs associated with operating the Program. The specific equations used to calculate these costs vary by institution, as explained below.

The approved provisional rate of 33% was used to calculate Ocean Leadership general and administrative (G&A) costs. Each year, G&A costs are charged on all Ocean Leadership direct costs and on the first $100,000 of all subcontracts Ocean Leadership administers under a particular contract (e.g., total annual G&A on LDEO and TAMRF subcontracts = $66,000). The G&A costs for the two subcontracts (LDEO and TAMRF) are divided evenly between SOC G&A and POC G&A ($33,000 each = $16,500 SOC + $16,500 NSF).

For LDEO, indirect costs at 53% are assessed on all charges except permanent equipment. In addition, subcontracts are charged indirect costs on the first $25,000 of each contract. The indirect costs for subcontracts established prior to FY13 have already been paid, so these subcontracts are not subject to indirect cost during FY13. MTDCs are the total direct costs minus these exceptions.

A negotiated administrative fee is paid to TAMRF in lieu of indirect costs for corporate administration of the Program, as established by the Ocean Leadership/TAMRF contract. This fee reimburses TAMRF for corporate activities in support of TAMU performed by staff members who are not direct charged to the Program (i.e., TAMRF staff members who work at the TAMRF corporate office). Examples of these services include but are not limited to vendor activities (i.e., payment for goods and services, check processing, verification, and distribution); 1099 preparation and distribution, audit liaison, document scanning and storage; postage; management activities; and university/vendor liaison and payroll preparation and distribution. Use of corporate resources eliminates redundancy and reduces costs to IODP.

6. TECHNICAL, ENGINEERING, AND SCIENCE SUPPORT

6.1. GOALS

The USIO is responsible for providing scientific and operational planning and implementation for the USIO riserless drilling expeditions in response to the IODP science planning structure and interfacing with IODP-MI. The USIO will also provide formation temperature measurement services to CDEX and technical advice and logistical assistance ESO and CDEX for Schlumberger and other logging services for their expeditions in FY13.

Goals of the USIO for this WBE include planning, managing, coordinating, and performing the activities and providing the services, materials, platforms, and ship- and shore-based laboratories necessary to support all IODP USIO FY13 expeditions; conducting long-range operational planning for out-year USIO expeditions; and providing technical advice and assistance for ESO and CDEX expeditions.

6.2. DELIVERABLES IN FY13

- Expedition Planning and Implementation: Provide scientific, technical, and operational planning and execution for each scheduled expedition, including provision of a drilling platform. Conduct long-range operational and science planning for out-year expeditions.
- Reporting: Provide expedition-related reports and content for expedition publications (e.g., *Scientific Prospectus, Preliminary Report,* etc.). Act as a liaison to SAS and other panels, task forces, and workshops as appropriate.
- Expedition Staffing: Provide selection and support for scientific staffing and Co-Chief Scientist selection for each scheduled USIO expedition. Provide support for shipboard and shore-based technical personnel and activities.
- Logistics Support: Provide for expedition and shore-based activities including procurement, shipping, and inventory of equipment and supplies.
- Analytical Systems: Support and maintain shipboard and shore-based analytical facilities, tools, instruments, and associated quality assurance/quality control (QA/QC) protocols. Ensure effective capture and transfer of expedition data to database systems.
- Logging: Provide for the delivery of logging services, including wireline fishing and back-off/severing services for each scheduled USIO expedition. Provide technical advice to ESO and CDEX for Schlumberger and other logging operations, and arrange for Schlumberger and other logging services for ESO and CDEX, where appropriate.
- Environmental Assessment: Provide for environmental assessment services for marine mammal permitting associated with seismic operations.
- Engineering Support: Provide engineering support for maintaining and developing shipboard and shore-based drilling, coring, logging, and downhole systems, including third-party developments and long–lead time borehole installation projects, for each scheduled USIO expedition..
- Legacy Documentation: Routinely archive electronic copies of documents and reports produced by the USIO on behalf of IODP, including daily, weekly, site summary, operations, and engineering reports.

6.3. BUDGET

Technical, Engineering, and Science Support			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	6,995,982	0	6,995,982
Travel	1,150,776	0	1,150,776
Supplies	2,207,299	0	2,207,299
Shipping	948,567	0	948,567
Communication	270,145	0	270,145
Contractual Services	3,873,523	0	3,873,523
Equipment	1,102,500	0	1,102,500
Other Direct Costs	43,449,450	0	43,449,450
Day Rate	*30,952,267*	*0*	*30,952,267*
Fuel and Lubricants	*6,530,864*	*0*	*6,530,864*
Per Diem	*581,457*	*0*	*581,457*
Port Calls	*1,768,000*	*0*	*1,768,000*
Insurance	*1,835,427*	*0*	*1,835,427*
Travel—ODL	*1,015,070*	*0*	*1,015,070*
Other	*766,365*	*0*	*766,365*
Relocation	*75,000*	*0*	*75,000*
Training	*201,650*	*0*	*201,650*
Business Conferences	*18,500*	*0*	*18,500*
Insurance	*9,000*	*0*	*9,000*
Services	*168,575*	*0*	*168,575*
Equipment rental	*840*	*0*	*840*
Other expenses—ODL	*45,000*	*0*	*45,000*
Furniture	*2,000*	*0*	*2,000*
Recruiting	*45,000*	*0*	*45,000*
Maintenance and repair	*193,000*	*0*	*193,000*
Library	*7,800*	*0*	*7,800*
Total Direct Costs	59,998,242	0	59,998,242
Modified Total Direct Costs (if applicable)	1,033,498	0	1,033,498
Indirect Costs or Administrative Fees	547,754	0	547,754
Total Technical, Engineering, and Science Support	**$60,545,996**	**$0**	**$60,545,996**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—Salaries, fringes, and sea pay, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Salaries and fringes for staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables).

Travel—Transportation, per diem, lodging, and other associated costs.

Travel to IODP meetings and workshops, pre-expedition and postexpedition meetings, and FY14 planning meetings; meetings with drilling equipment supply vendors; subcontract site visits; conferences; and travel costs for USIO staff who will work at port calls, sail on FY13 and initial FY14 expeditions and transit, and/or work on the ship during transits or tie-up periods. Also includes LDEO travel to professional training courses and meetings.

Supplies—Office and operational supplies.

General office supplies; electronic media and other computer supplies with an acquisition cost of less than $1,000 (for TAMU); printer and copier supplies; operational, laboratory, standard reference material, logistic, and shipping supplies for shipboard and shore-based analytical and

engineering laboratory and test facilities, FY13 expeditions, and long-lead supplies for FY14 expeditions. Other drilling or science supplies may be purchased in support of USIO deliverables using cost avoidances gained during the fiscal year.

Shipping—Postage, express mail, and freight.

Postage for regular correspondence and small packages and shipping to and from FY13 expeditions.

Communication—Satellite, telephone, and fax charges.

Standard telephone line, long distance, and fax charges. Cost for VSAT communication and Marisat communication to and from the *JOIDES Resolution.*

Contractual Services—Consultant and contract services.

Subcontract to members of the Logging Consortium (University of Montpellier, France; University of Leicester, United Kingdom; University of Aachen, Germany) to provide shipboard participation of Logging Staff Scientists, liaisons to selected panels as needed, and scientific support for Program planning and logging-related projects. Subcontract to Schlumberger for provision of a standard suite of tools, engineer services, software support, and mobilization services; specialty tools for use on individual cruises as needed; a dedicated engineer on the ship for each cruise and support from the base of operations; the services of a district engineer, staff engineer, electronics technician, and special services engineer on an as-needed basis (part-time to nearly full-time support); costs (including shipping charges) related to leasing equipment needed for wireline fishing, back-off and severing services, the day rate and travel expenses for the Schlumberger engineer, and the day rate for tool insurance for the deployment of downhole logging tools. Other contracts provide test and calibration services for analytical equipment and downhole measurement tools. In addition, costs are budgeted for contractual services from LGL Limited associated with environmental evaluation for marine mammal permitting associated with seismic operations.

Equipment—Procurement, upgrading, or fabrication of equipment with an acquisition cost of more than $5,000, plus those items as defined by Ocean Leadership, Columbia University, or TAMRF policy.

Tools and equipment in support of logging operations and downhole measurement tool testing at the LDEO Environmental Stress Screening Facility and other facilities. Operational equipment replacement (e.g., advanced hydraulic piston corer, extended core barrel, and rotary core barrel standard and nonmagnetic wireline coring components, subs, crossovers, fishing tools, drill collars, coring line, and outer core barrel components) and acquisition of parts and spare units for temperature and other downhole measurement tools. Acquisition of new analytical systems (e.g., carbon isotope analyzer), and capital replacement or upgrades of failed or obsolete laboratory equipment, including but not limited to microscopes, image capture systems for microscopy, color spectrophotometer, gas chromatograph, Cahn electrobalances, Carver presses, ion chromatograph upgrade, wavelength dispersive X-ray fluorescence (XRF) improvements, global positioning system antennas and control systems, ashing furnace, parallel saw, lap wheels, vent hoods, gas detection sensors, sonar dome parts replacement, and analytical bead maker.

Other Direct Costs—Costs not covered in other categories.

Day Rate—Vessel staffing for the subcontractor's sailing crew and drilling personnel.

Cost of staffing the ship, including the sailing crew and drilling personnel, but not including the cost of the USIO personnel or scientists aboard the ship. The day rate varies according to the mode of the ship, which is operating (drilling or cruising) or standing by (in port). Although it is a fixed rate per day, the day rate is adjusted for changes in the Consumer Price Index-Urban (CPI-U) and Employment Cost Index (ECI). The amount is based on 365 days, which includes all or part of three non-IODP periods: the final 18 days of a 64-day non-IODP period (1–18 October 2012), an 87-day non-IODP period (3 March–29 May 2013), and the first three days of a 61-day non-IODP period (28–30 September 2013). Curaçao, Netherlands Antilles has been tentatively designated as the location for the first non-IODP period; Victoria, British Columbia (Canada), for the second non-IODP period; and Busan, Korea, for the non-IODP period beginning at the end of FY13 on 28 September 2013. The operating/transiting and standby day rates, respectively, are $84,571 and $82,268 (1 October–31 December 2012), $84,942 and $83,627 (1–31 January 2013), and $86,070 and $83,718 (1 February–30 September 2013). The budget allows for one ECI base adjustment of 2.519429%, effective 1 January 2013, and one CPI-U based adjustment of 2.497781%, effective 1 February 2013.

Fuel and Lubricants—Fuel for the riserless vessel.

FY13 ship operations fuel purchases are estimated at a total of 5,786 metric tons: 1,266 metric tons in Puntarenas, Costa Rica; 1,318 metric tons in Balboa, Panama; 1,363 metric tons in Victoria, British Columbia (Canada), in May 2013 and another 1,320.5 metric tons at that same location in July 2013; and 518.5 metric tons in Busan, Korea, on the commencement of a 61-day maintenance period scheduled to begin 28 September 2013. Price per metric ton is based on prices quoted by Bunkerworld on 7 June 2012 for the locations specified, plus a 10% inflation factor. **Note: If inflation exceeds 10%, we will not be able to execute the full expedition schedule.**

Per Diem—Shipboard catering.

Costs associated with meals and berthing on the vessel and cleaning of the laboratory stack. The estimate is based on a shipboard party of 60 participants at $31.88/day/person for all nontransit and nonmaintenance periods. The number of personnel on board for transit and non-IODP periods was estimated based on a staffing schedule distributed on 1 March 2012 and varies from 8 to 24 at a cost of $97.38 day/person to $50.03 day/person (the lower the number on board, the higher the daily rate per person). Also included is $3,000 for meals served during port calls (including non-IODP periods) to all nonseagoing personnel. This category does not include per diem for the ship subcontractor's sailing crew and drilling personnel, as they are accounted for in the day rate unless charged as a reimbursable (see "Day Rate" above).

Port Calls—Vessel agent's expenses and subcontractor freight.

Port calls are scheduled for Curaçao (the final 18 days of tie-up/non-IODP period at beginning of FY13); Balboa, Panama (2 days); Puntarenas, Costa Rica (5 days); Balboa, Panama (5 days); Victoria, British Columbia (Canada) (87 days for the non-IODP period and 3 days for redeployment preparation); Victoria, British Columbia (Canada)/TBD (4 days); Hakodate, Japan (1 day) and Busan, Korea (5 days).

Insurance—Annual insurance premiums for subcontractor and TAMRF.

Subcontractor's premium costs for All Risks Marine Hull and Machinery (H&M) and Removal of Wreck (ROW) insurance and TAMRF premium costs for General and Automobile Liability, Workers Compensation, Cargo, Third Party Property (Equipment), Excess Liability, Control of Well and Seepage and Pollution Liability, Charterers Legal Liability, and Contractor's Pollution Liability–Gradual coverage for the vessel. All premium amounts are based on 365 days of coverage, and the premiums for Sections 1 and 2 of the Hull & Machinery coverage are discounted 50% during the non-IODP periods, which total 108 days in FY13.

Travel–ODL—Subcontractor transportation.

Airfare for ship subcontractor's crews to/from six scheduled crew changes—Puntarenas, Costa Rica (Hess Deep); Balboa, Panama (transit/non-IODP period); three in Victoria, British Columbia (Canada) (non-IODP period, South Alaska, and transit/Asian Monsoon). The estimate is based on a crew of 60 personnel with various domestic and international origin fly points arriving and departing each port call. Expedition costs are based on round trip airfares for the ship subcontractor's sailing crew and drilling personnel to travel to the port call where the expedition begins and return from the port call where the expedition ends.

Relocation—Relocation costs for new employees.

Relocation costs for new employees (TAMU).

Training—Registration, transportation, per diem, and lodging expenses related to professional training.

Registration and travel costs for safety and other training courses and meetings (TAMU).

Business Conferences—Incidental expenses associated with meetings hosted by the USIO.

Expenses for pre-expedition, postexpedition, and planning meetings; refreshments provided for various business meetings; and catering services occasionally required for on-site training and professional consultant services.

Insurance—Annual insurance premiums.

Annual insurance premiums for USIO vehicles.

Services—Expert assistance.

Annual physical examinations for seagoing personnel, copier services, vehicle and warehouse equipment repair, drill pipe maintenance, equipment testing and calibration, machine shop services, costs to cover miscellaneous charges payable to the ship's subcontractor, wireline severing charges, transfer fees, and weather reports.

Equipment Rental—Rental of equipment when it is more economical to rent than to purchase.

Test facility outhouse rental.

Other Expenses—ODL—ODL costs not covered in other categories.

Costs for possible medical evacuations ($25,000) and miscellaneous reimbursable supplies and maintenance costs ($20,000) payable to the ship subcontractor.

Furniture—Office furniture.

Replacing broken or aging office furniture and storage cabinets for use in office and at external storage facilities.

Recruiting—Employee recruitment.

Local advertisements, advertisements in science and trade journals, and other costs related to filling/replacing positions and recruiting professional staff.

Maintenance and Repair—Maintenance agreements and equipment repairs.

Maintenance and repair of office equipment; postage meter; vehicle fleet; equipment in warehouse; overhead cranes and other loading dock equipment; and drilling, coring, logging operations, laboratory, and safety equipment.

Library—Books, journals, and other resources.

Technical books, journals, resources, and subscriptions to professional materials.

Indirect Costs—Administrative and financial costs associated with operating the Program.

For LDEO, indirect costs at 53% are assessed on all charges except permanent equipment. In addition, subcontracts are charged indirect costs on the first $25,000 of each contract. The indirect costs for subcontracts established prior to FY13 have already been paid, so these subcontracts are not subject to indirect cost during FY13. MTDCs are the total direct costs minus these exceptions.

7. ENGINEERING DEVELOPMENT

7.1. GOALS

The USIO is responsible for utilizing IODP resources to oversee and/or provide engineering development projects in accordance with the long-term engineering needs of IODP as prioritized by the SAS.

7.2. DELIVERABLES IN FY13

- USIO Technical Panel: Operate the USIO Technical Panel (UTP), through which external members from industry and academia participate in bi-annual meetings to review engineering and operations issues within the USIO with the purpose of providing third-party advice to aid the USIO. The UTP is administered and operated by Ocean Leadership with assistance from the USIO partners.
- Legacy Documentation: Routinely archive electronic copies of documents and reports produced by the USIO on behalf of IODP.

7.3. BUDGET

Engineering Development			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	0	0	0
Travel	44,000	0	44,000
Supplies	3,000	0	3,000
Shipping	0	0	0
Communication	3,000	0	3,000
Contractual Services	25,000	0	25,000
Equipment	0	0	0
Other Direct Costs	0	0	0
Total Direct Costs	75,000	0	75,000
Modified Total Direct Costs (if applicable)	0	0	0
Indirect Costs or Administrative Fees	24,750	0	24,750
Total Engineering Development	**$99,750**	**$0**	**$99,750**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—None budgeted.

Travel—Transportation, per diem, lodging, and other associated costs.

Costs to support invited members to attend UTP meetings at USIO locations.

Supplies—Office and operational supplies.

General office supplies, printer supplies, general computer supplies to support panel functions.

Shipping—None budgeted

Communication—Satellite, telephone, and fax charges.

Telephone, web conferencing, and video conferencing as needed to support the panel.

Contractual Services—Consultant and contract services.

Engineering evaluation services beyond the scope of UTP volunteers as needed to complete panel objectives.

Equipment—None budgeted.

Other Direct Costs—None budgeted.

Indirect Costs—Administrative and financial costs associated with operating the Program.

The approved provisional rate of 33% was used to calculate Ocean Leadership G&A costs. Each year, G&A costs are charged on all Ocean Leadership direct costs and on the first $100,000 of all subcontracts Ocean Leadership administers under a particular contract (e.g., total annual G&A on LDEO and TAMRF subcontracts = $66,000). The G&A costs for the two subcontracts (LDEO and TAMRF) are divided evenly between SOC G&A and POC G&A ($33,000 each = $16,500 SOC + $16,500 NSF).

8. CORE CURATION

8.1. GOALS

USIO Core Curation goals include providing services in support of IODP core sampling and curation of the core collection archived at the Gulf Coast Repository (GCR).

8.2. DELIVERABLES IN FY13

- Policy and Procedures: Work with other IOs, the SAS, and IODP-MI to review and revise the IODP Sample, Data, and Obligations Policy, as needed, and implement a policy for IODP core curation. Work closely with staff to coordinate, standardize, and document curatorial procedures for IODP cores and samples.
- Sample and Curation Strategies: Plan sample and curation strategies for upcoming USIO expeditions and review all shipboard and moratorium-related requests in coordination with the other members of the Sample Allocation Committee for each expedition.
- Sample Requests: Fulfill postmoratorium sample requests from the scientific community.
- Core Sampling: Provide curator specialist on board the drillship to supervise core sampling during ship operations.
- Core Curation: Conduct all responsibilities associated with curation of core collections at the GCR and provide services in support of core sampling, analysis, and education.
- Use of Core Collection: Promote outreach use of the core collection in collaboration with IODP-MI and IO education/outreach personnel by providing materials for display at meetings or museums, as well as conducting tours and supporting other USIO outreach activities.
- Meetings: Participate in annual IODP curatorial staff meeting. Act as IO liaison to meetings with the other IOs, IODP-MI, and the SAS, as appropriate.
- Legacy Documentation: Routinely archive electronic copies of documents and reports produced by the USIO on behalf of IODP.

8.3. BUDGET

Core Curation			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	94,249	0	94,249
Travel	15,375	0	15,375
Supplies	8,750	0	8,750
Shipping	6,250	0	6,250
Communication	875	0	875
Contractual Services	0	0	0
Equipment	0	0	0
Other Direct Costs	8,438	0	8,438
Training	*3,750*	*0*	*3,750*
Business Conferences	*750*	*0*	*750*
Services	*2,438*	*0*	*2,438*
Maintenance and Repair	*1,500*	*0*	*1,500*
Total Core Curation Direct Costs	133,937	0	133,937
Modified Total Direct Costs (if applicable)	0	0	0
Indirect Costs or Administrative Fees	0	0	0
Total Core Curation	**$133,937**	**$0**	**$133,937**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—Salaries, fringes, and sea pay, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Salaries, fringes, and sea pay for staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables).

Travel—Transportation, per diem, lodging, and other associated costs.

Travel to IODP meetings and workshops, IO meetings, and USIO meetings (including an annual IODP Curators meeting); professional conferences; and travel costs for USIO staff who will sail on FY13 expeditions.

Supplies—Office and operational supplies.

General office supplies and printer supplies; general safety, cleaning, and laboratory supplies; specialized supplies for sampling and curatorial tasks; crates and shipping boxes.

Shipping—Postage, express mail, and freight.

Postage for regular correspondence, regular-sized sample shipments to scientists, and costs for special shipments of deep-frozen microbiological samples, U-channels, or whole core sections for X-ray fluorescence scanning.

Communication—Telephone and fax charges.

Standard telephone line, long distance, cellular phone, and fax charges.

Contractual Services—None budgeted.

Equipment—None budgeted.

Other Direct Costs—Costs not covered in other categories.

Training—Registration, transportation, per diem, and lodging expenses related to professional training.

Registration and travel costs for professional training courses and meetings (TAMU).

Business Conferences—Incidental expenses associated with meetings hosted by the USIO.

Expenses for sample parties and groups of scientists, educators, or others visiting the GCR.

Services—Expert assistance.

Annual physical examinations for seagoing personnel, Graduate Assistant Research tuition and fees, and facilities repair.

*Maintenance and Repair—*Maintenance agreements and equipment repairs.

Repairs and maintenance for deep freezers; laboratory, repository, and office equipment; and shrink-wrap and bagging machinery.

9. DATA MANAGEMENT

9.1. GOALS

USIO Data Management goals include management of data supporting IODP activities, management of expedition and postexpedition data, provision of long-term archival access to data, supporting IT services, and providing database services for postmoratorium ESO and CDEX log data.

9.2. DELIVERABLES IN FY13

- Expedition Data: Maintain and manage databases supporting expedition planning and data collected during expeditions. Operate and maintain data management and harvesting systems (including QA/QC for storage and archival of expedition and postexpedition data, including core and sample tracking). Respond to data requests from the scientific community. Process downhole log data. Provide database services for postmoratorium ESO and CDEX log data.
- Program-wide Data Query Services: Provide USIO customers with access to expedition databases and data using web-based services.
- Operation and Maintenance: Operate and maintain computer and network systems both on ship and shore.
- Security: Monitor and protect USIO network and server resources to ensure safe, reliable operation and security for IODP data and IT resources.
- Software Development: Provide software development services as needed (excluding analytical systems), maintain software, and provide training support for shipboard scientists as necessary.
- Legacy Documentation: Routinely archive electronic copies of documents and reports produced by the USIO on behalf of IODP, including documentation of all information technology architecture and corresponding services configurations.

9.3. BUDGET

Data Management			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	1,462,691	0	1,462,691
Travel	107,979	0	107,979
Supplies	38,940	0	38,940
Shipping	2,065	0	2,065
Communication	25,965	0	25,965
Contractual Services	0	0	0
Equipment	145,430	0	145,430
Other Direct Costs	374,327	0	374,327
Training	*35,250*	*0*	*35,250*
Business Conferences	*545*	*0*	*545*
Software	*51,000*	*0*	*51,000*
Services	*24,725*	*0*	*24,725*
Maintenance and Repair	*261,962*	*0*	*261,962*
Library	*845*	*0*	*845*
Total Direct Costs	2,157,397	0	2,157,397
Modified Total Direct Costs (if applicable)	502,422	0	502,422
Indirect Costs or Administrative Fees	266,283	0	266,283
Total Data Management	**$2,423,680**	**$0**	**$2,423,680**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—Salaries, fringes, and sea pay, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Salaries and fringes for staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables).

Travel—Transportation, per diem, lodging, and other associated costs.

Travel costs for USIO staff who will work at port calls and sail on FY13 expeditions and transit. Also includes LDEO travel to professional training courses and meetings.

Supplies—Office and operational supplies.

General office supplies and electronic media and other computer supplies with an acquisition cost of less than $1,000 (for TAMU) and $5,000 (for LDEO), including printers, laptops, tablet computers, and monitors (LDEO). Other data management supplies may be purchased in support of USIO deliverables using cost avoidances gained during the fiscal year.

Shipping—Postage, express mail, and freight.

Postage for regular correspondence and small packages.

Communication—Telephone and fax charges.

Standard telephone line, long distance, cellular phone, and fax charges.

Contractual Services—None budgeted.

Equipment—Procurement, upgrading, or fabrication of equipment with an acquisition cost of more than $5,000, plus those items as defined by Ocean Leadership, Columbia University, or TAMRF policy.

Computer and network equipment to replace aged network models, workstations and plotters, and new workstations for new staff.

Other Direct Costs—Costs not covered in other categories.

Training—Registration, transportation, per diem, and lodging expenses related to professional training.

Registration and associated travel costs for professional training courses and meetings (TAMU). Registration for professional training courses and meetings (LDEO).

Business Conferences—Incidental expenses associated with meetings hosted by the USIO.

Expenses for refreshments provided for various business meetings and catering services occasionally required for on-site training and professional consultant services.

Software—Software purchases and upgrades.

Software subscriptions, volume licensing agreements, and concurrent usage software agreements used in support of continuing activities and systems maintenance for the entire enterprise (TAMU).

Services—Expert assistance.

Annual physical examinations for seagoing personnel, TAMU Physical Plant services, IT expert assistance services, safe deposit boxes, and copier services.

Maintenance and Repair—Maintenance agreements and equipment repairs.

Departmental copier maintenance agreements, various maintenance contracts and repairs for IT computer hardware and software, and noncontracted maintenance on imaging equipment such as cameras.

Library—Books, journals, and other resources.

Books, professional publications, and documentation materials required for reference.

Indirect Costs—Administrative and financial costs associated with operating the Program.

For LDEO, indirect costs at 53% are assessed on all charges except permanent equipment. In addition, subcontracts are charged indirect costs on the first $25,000 of each contract. The indirect costs for subcontracts established prior to FY13 have already been paid, so these subcontracts are not subject to indirect cost during FY13. MTDCs are the total direct costs minus these exceptions.

10. PUBLICATIONS

10.1. GOALS

USIO Publications goals include providing publications support services for IODP riserless and riser drilling expeditions; editing, production, and graphics services for all required reports and scientific publications as defined in the USIO contract with IODP-MI; and warehousing and distribution of IODP, Ocean Drilling Program (ODP), and Deep Sea Drilling Project (DSDP) publications.

IODP publications include Quarterly and Annual Reports for the USIO; a *Scientific Prospectus* and *Preliminary Report* for each USIO, CDEX, and ESO expedition; and *Proceedings of the Integrated Ocean Drilling Program* volumes for USIO, CDEX, and ESO expeditions. CDEX and ESO reports and publications are produced according to prescribed schedules that commence upon receipt of content by the USIO.

10.2. DELIVERABLES IN FY13

- Publications Support: Provide a Publications Specialist for publications support and report coordination during three USIO expeditions.
- Legacy Documentation: Routinely archive electronic copies of all documents and reports produced by the USIO on behalf of IODP.

10.3. BUDGET

Publications			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	64,840	0	64,840
Travel	20,000	0	20,000
Supplies	0	0	0
Shipping	0	0	0
Communication	0	0	0
Contractual Services	0	0	0
Equipment	0	0	0
Other Direct Costs	0	0	0
Total Direct Costs	84,840	0	84,840
Modified Total Direct Costs (if applicable)	0	0	0
Indirect Costs or Administrative Fees	0	0	0
Total Publications	**$84,840**	**$0**	**$84,840**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—Salaries, fringes, and sea pay, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Salaries and fringes for staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables).

Travel—Transportation, per diem, lodging, and other associated costs.

Travel costs for USIO staff who will sail on FY13 and initial FY14 expeditions.

Supplies—None budgeted.

Shipping—None budgeted.

Communication—None budgeted.

Contractual Services—None budgeted.

Equipment—None budgeted.

Other Direct Costs—None budgeted.

11. EDUCATION

11.1. GOALS

USIO Education responsibilities include developing and disseminating expedition-specific and thematic education activities and materials for elementary through post-secondary and free-choice learning audiences, and promoting partnerships to provide learning opportunities. Expedition-specific activities will include current expeditions and supporting legacy resources.

The USIO facilitates education activities through Deep Earth Academy (funded jointly by the USIO and the United States Science Support Program) in cooperation with other U.S. education and outreach groups, conducting teacher education activities; developing, testing, and disseminating educational curriculum that highlights IODP science programs; and implementing live and near-real-time programs that highlight and use the *JOIDES Resolution* as a platform for education. These activities require direct and indirect interfacing with students and educators through a variety of activities targeting U.S. middle-school, high-school, undergraduate, family, and museum audiences.

11.2. DELIVERABLES IN FY13

- Professional Development: Provide professional development opportunities for elementary through postsecondary faculty and museum educators through onboard teacher research experiences and School of Rock programs aboard the *JOIDES Resolution*, and workshops at conferences, museums, and other strategic venues.
- Expedition-based Activities and Materials: Link school and public audiences to activities on board the *JOIDES Resolution* via Web 2.0 technologies, the *JOIDES Resolution* website, videoconferencing, and/or podcasting. Produce new expedition-specific and thematic video and learning materials based on legacy material and science and life at sea during FY13 expeditions.
- Strategic Partnerships: Foster current partnerships and develop new alliances with related science programs, national associations, organizations, and agencies with synergistic goals and objectives.
- Scientists as Educators: Target, advertise, and implement opportunities for IODP scientists to participate in education activities ranging from museum and classroom programs to expedition-specific plans and grant writing for FY13 expeditions.
- Outside Funding and Sponsorships: Work with USIO partners, Ocean Leadership education partners, member organizations, and advisers to secure outside funding sources and sponsorships.
- Legacy Documentation: Routinely archive electronic copies of relevant educational products and materials produced by the USIO on behalf of IODP.

11.3. BUDGET

Education			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	0	199,596	199,596
Travel	0	64,500	64,500
Supplies	0	4,000	4,000
Shipping	0	5,000	5,000
Communication	0	2,000	2,000
Contractual Services	0	55,000	55,000
Equipment	0	2,000	2,000
Other Direct Costs	0	49,000	49,000
Services	*0*	*49,000*	*49,000*
Total Direct Costs	0	381,096	381,096
Modified Total Direct Costs (if applicable)	0	0	0
Indirect Costs or Administrative Fees	0	125,762	125,762
Total Education	**$0**	**$506,858**	**$506,858**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—Salaries and fringes, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Salaries and fringes for staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables).

Travel—Transportation, per diem, lodging, and other associated costs.

Costs to support participants in School of Rock activities, staffing of booths at national and regional meetings, expedition-specific activities, and dissemination of expedition-specific materials and products.

Supplies—Office and operational supplies.

General office supplies and expendables and operational supplies including partial costs of informational materials, posters, brochures, and expedition-specific products.

Shipping—Postage, express mail, and freight.

Postage, express mail, courier services, and freight, including shipping of booth materials to national and regional meetings.

Communication—Satellite, telephone, and fax charges.

Standard telephone line, long distance, and fax charges.

Contractual Services—Consultant and contract services.

Curriculum development and program implementation, stipends to teachers participating in School of Rock activities, stipends to onboard education officers, video production, Web 2.0 interactive design, and poster printing and design.

Equipment—Procurement, upgrading, or fabrication of equipment with an acquisition cost of more than $5,000, plus those items as defined by Ocean Leadership, Columbia University, or TAMRF policy.

Video broadcasting equipment.

Other Direct Costs—Costs not covered in other categories.

Services—Expert assistance.

Costs for informal science programming, production costs and services related to School of Rock and expedition-specific programs, development and publication costs for education materials and mobile learning technologies, and scholarships for School of Rock participants.

Indirect Costs—Administrative and financial costs associated with operating the Program.

The approved provisional rate of 33% was used to calculate Ocean Leadership G&A costs. Each year, G&A costs are charged on all Ocean Leadership direct costs and on the first $100,000 of all subcontracts Ocean Leadership administers under a particular contract (e.g., total annual G&A on LDEO and TAMRF subcontracts = $66,000). The G&A costs for the two subcontracts (LDEO and TAMRF) are divided evenly between SOC G&A and POC G&A ($33,000 each = $16,500 SOC + $16,500 NSF).

12. OUTREACH

12.1. GOALS

USIO Outreach responsibilities include measures to effectively communicate both shore- and ship-based components of IODP activities to the public and to policy audiences in collaboration with IODP-MI and the other IOs, and encouraging awareness of and interest in the scientific results of the Program.

The USIO raises the visibility of IODP as an innovative international earth science research program to new and existing audiences by targeting informational outreach to members of the general public, science and general-interest media, scientists and engineers from both within the IODP community and beyond, and decision makers at the national level. USIO Outreach uses expeditions and Program achievements to promote scientific ocean drilling and the scientific data and analysis that emerge from it, and makes the connection between this emerging scientific knowledge and its positive contribution to society worldwide. USIO communications activities and tools build a foundation of knowledge about scientific ocean drilling (e.g., its achievements, merits, spectrum of national contributions, and high value to future scientific achievement) that is easily accessible to the public and other targeted communities online, in forums and meetings, and in the media.

12.2. DELIVERABLES IN FY13

- Community Outreach Activities: Develop new and improve existing materials and programs designed to inform the IODP community and colleagues of Program news and developments (e.g., community newsletter, advertisements for Program opportunities, and so on).
- Media Relations and Public Outreach: Conduct media and general public outreach related to ongoing *JOIDES Resolution* operations, as well as at major science meetings both in the United States and abroad (as appropriate), and in support of Program scientists' publications in high-profile scientific journals. Leverage online and other tools to proactively tell the IODP "story" in as many compelling ways, for as many diverse audiences, across as many communications platforms as possible, to raise the overall visibility and positive image of IODP.
- Media Training: Provide media training for Co-Chief Scientists, Education Officers, and select Science Party members of all *JOIDES Resolution* expeditions; provide similar training as appropriate for other members of the IODP community.
- Global Outreach Activities: Coordinate outreach activities with other IODP entities, including IODP-MI, ECORD, and CDEX.
- Legacy Documentation: Routinely format and archive electronic copies of relevant products and publications (e.g., press releases, brochures, newsletters, and so on) produced by the USIO on behalf of IODP.

12.3. BUDGET

Outreach			
Element/Expense Category	**POC**	**OPIC**	**Total**
Salaries and Fringes	0	71,379	71,379
Travel	0	22,000	22,000
Supplies	0	1,000	1,000
Shipping	0	3,000	3,000
Communication	0	1,000	1,000
Contractual Services	0	30,000	30,000
Equipment	0	0	0
Other Direct Costs	0	2,000	2,000
Training	*0*	*1,000*	*1,000*
Services	*0*	*1,000*	*1,000*
Total Direct Costs	0	130,379	130,379
Modified Total Direct Costs (if applicable)	0	0	0
Indirect Costs or Administrative Fees	0	43,025	43,025
Total Outreach	**$0**	**$173,404**	**$173,404**

NSF funds for this WBE are budgeted as follows:

Salaries and Fringes—Salaries and fringes, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Salaries and fringes for staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables).

Travel—Transportation, per diem, lodging, and other associated costs.

Costs to support participation in port calls, outreach to stakeholders, press events, media training, attendance at national meetings, and professional development opportunities.

Supplies—Office and operational supplies.

General office supplies and expendables and operational supplies including partial costs of informational materials, posters, and brochures for congressional outreach and platform enrichment activities.

Shipping—Postage, express mail, and freight.

Postage, express mail, courier services, and freight, including shipping of booth materials to national and regional meetings.

Communication—Satellite, telephone, and fax charges.

Standard telephone line, long distance, and fax charges.

Contractual Services—Consultant and contract services.

Preparation and printing of public relations materials, including newsletters and informational fliers; production and implementation of video and website projects; and booth rentals and associated costs at national meetings.

Equipment—None budgeted.

Other Direct Costs—Costs not covered in other categories.

Training—Registration, transportation, per diem, and lodging expenses related to professional training.

Professional development costs and professional society membership dues.

Services—Expert assistance.

Costs for distribution of press releases via fee-for-service outlets (i.e., EurekAlert, AlphaGalileo).

Indirect Costs—Administrative and financial costs associated with operating the Program.

The approved provisional rate of 33% was used to calculate Ocean Leadership G&A costs. Each year, G&A costs are charged on all Ocean Leadership direct costs and on the first $100,000 of all subcontracts Ocean Leadership administers under a particular contract (e.g., total annual G&A on LDEO and TAMRF subcontracts = $66,000). The G&A costs for the two subcontracts (LDEO and TAMRF) are divided evenly between SOC G&A and POC G&A ($33,000 each = $16,500 SOC + $16,500 NSF).

APPENDIX I: USIO IT SECURITY SUMMARY

ROLES AND RESPONSIBILITIES

System Administrator, Marine Computer Specialist, and Support Specialist responsibilities include

- Applying platform technical safeguards.
- Supplying the first-level response (i.e., restoration services) to any security breach.
- Immediately reporting any security breach to the Departmental System Administrator.

Departmental System Administrator responsibilities include

- Assuring that best practices are followed in the administration of systems.
- Disseminating education and security awareness training.
- Reporting criminal activity under applicable state code concerning computer or telecommunications crimes to the Director, department head, and their respective college computing and information services (CIS) department.
- Determining if a violation rises to the standard of fraud or fraudulent action and reporting it to the Chief Executive Officer.
- Determining the physical and electronic evidence to be gathered as part of incident investigation such as initiating, completing, and documenting the incident investigation.

RISK ASSESSMENT

Security and risk assessment represent primary job duties of the Ocean Leadership IT Manager, who continually monitors the threat environment. LDEO performs risk assessment on an on-going basis in order to respond to current conditions. TAMU completes an annual Information Security Assessment, Awareness, and Compliance (ISAAC) report as required by TAMU. The results are forwarded to the College of Geosciences, where they are reviewed and filed. Along with this annual risk assessment of computer systems and networks, TAMU is required to perform a physical security risk assessment of its facility.

TECHNICAL SAFEGUARDS

- Departmental IT personnel shall test security patches prior to implementation where practical. Departmental IT personnel are encouraged to have hardware resources available for testing security patches in the case of special applications.
- System Administrators shall ensure that vendor-supplied patches are routinely acquired, systematically tested, and installed promptly based on risk-management decisions.
- System Administrators shall remove unnecessary software, system services, and drivers.
- System Administrators shall enable security features included in vendor-supplied systems, including but not limited to firewalls, virus scanning and malicious code protections, and other file protections, where possible. Audit logging shall also be enabled. User privileges shall be set utilizing the “least privileges” concept of providing the minimum amount of access required to perform job functions. Privileges may be added as need is demonstrated by the user. The use of passwords shall be enabled in accordance with guidelines provided by the respective USIO policies (see below).
- System Administrators shall disable or change the password of default accounts.

- System Administrators or their designee shall test servers, especially, for known vulnerabilities periodically or when new vulnerabilities are announced.
- System Administrators shall seek and implement best practices for securing their particular system platform(s).
- Systems Administrators shall seek and implement best practices for securing wireless traffic. A minimum of 256 bit WPA2 (encryption) is required.

ADMINISTRATIVE SAFEGUARDS

The Ocean Leadership Administrative Policy Manual spells out IT administrative policies. New employees are required to acknowledge their understanding of these policies and all employees are required to review these policies periodically. University administrative safeguards followed by LDEO and TAMU are fully prescribed for all users and support personnel at www.ldeo.columbia.edu/it/pp/index.shtml and http://nis.tamu.edu/Home/IT_Policy.php, respectively. The extensive Standard Administrative Procedures provided by Columbia University and TAMU are available at http://www.columbia.edu/cu/policy/ and http://nis.tamu.edu/Home/IT_Policy/University_SAPs_and_Rules.php, respectively.

PHYSICAL SAFEGUARDS

Ocean Leadership

Network switchgear is secured in a locked suite network closet, though all organizations on the floor have access. The server room is within office-suite security, and servers and other equipment are stored in locked server racks. Ocean Leadership offices are monitored by on-site security 24 hours a day, 7 days a week. All Ocean Leadership workstations and laptops resident on the network continually sync to a redundant array of independent disks (RAID), which is backed up nightly. Off-site backup is achieved via mobile external hard drives, cycled regularly.

LDEO

The Borehole Research Group (BRG) building server room is secured unless the System Administrator is physically nearby. All network switches in both adjacent BRG office buildings reside in locked wall-mounted racks inside network rooms that are locked at all times. Access to any of the facilities is granted only to department personnel, vendors, or authorized personnel whose job responsibilities require access to the facility. All BRG computers, as well as the Log Database, are backed up at least once a day to storage devices in the BRG building, across Columbia University campus in the Geoscience building, and off-site at Ocean Leadership.

TAMU

After business hours, building entry is allowed via identification (ID)/keycard. Information is logged and available for retrieval at a later date. An access list is maintained by the Building Proctor. Entry into the main computer room is granted only to authorized personnel whose job responsibilities require access to the facility, and to vendors, when necessary. Doors are secured using push-button locks for which codes are changed periodically and whenever there is personnel change, regardless of the employee's status upon termination. Access codes are not to be shared with others.

Power to the computer room is provided via 50 kVA uninterruptible power supply (UPS) and matching power distribution unit (PDU). In case of power outage, power is supplied to UPS and backup heating, ventilation, and air-conditioning (HVAC) by a diesel generator. The computer room is protected from fire by a halon fire suppression system.

Incremental backups are completed on a daily basis and full backups are completed weekly. One full backup copy is kept locally and another is removed to off-site storage.

POLICIES AND PROCEDURES

General Policies and Procedures

- The USIO policy for communications to and from the *RV JOIDES Resolution* is available at http://iodp.tamu.edu/participants/policies/IODP_Comm_Policy.pdf.

Ocean Leadership

The relevant sections of the Ocean Leadership Administrative Manual are available at http://www.oceanleadership.org/files/IT_Policies.pdf. These policies are undergoing wholesale review as a result of Joint Oceanographic Institution's merger with the Consortium for Oceanographic Research and Education (CORE). All changes will be compatible with the broader USIO IT infrastructure.

LDEO

IT-specific policies for LDEO are available at www.columbia.edu/cu/policy/.

TAMU

IT-specific policies for TAMU are available at the following links:

- IT Resources Acceptable Use Policy: http://iodp.tamu.edu/internal/infotech/IT_Resources_Acceptable_Use_Policy.pdf
- Web Policy: http://iodp.tamu.edu/internal/infotech/web_policy.html

AWARENESS AND TRAINING

Ocean Leadership

All new employees are required to read and acknowledge their understanding of Ocean Leadership policies related to appropriate use of IT resources. With fewer than 30 users to support on site, regular face-to-face interaction and training/support tailored to the individual is the norm.

LDEO

All new LDEO employees receive personalized orientation regarding acceptable IT use. The orientation familiarizes employees with BRG computing policies. Some of the items discussed include information resources ownership, appropriate use of said resources, incidental use, unacceptable use, password management, password creation, virus awareness, software licensing, and administrative/special access.

TAMU

All new employees are required to attend an IT Acceptable Use Policy presentation. Some of the items discussed in the course are information resources ownership, appropriate use of said resources, incidental use, unacceptable use, password management, password creation, virus awareness, software licensing, and administrative/special access. All users are required to acknowledge that they have read, understand, and will comply with the IT Acceptable Use Policy.

All employees must take yearly security awareness training as required by IODP's partnership with TAMU. As part of this training, all users are required to acknowledge that they have read,

understand, and will comply with university requirements regarding computer security policies and procedures.

CYBERSECURITY BREACH NOTIFICATION PROCEDURES

In the event of a cybersecurity breach:

1. System Administrators have information security roles and responsibilities that can take priority over normal duties.

2. System Administrators are responsible for notifying their department heads and initiating the appropriate action, including restoration.

3. System Administrators are responsible for determining the physical and electronic evidence to be gathered as part of the incident investigation, such as initiating, completing, and documenting the incident investigation.

4. System Administrators shall report security incidents that may involve criminal activity under their respective state's penal code concerning computer or telecommunications crimes to the Director or department head and CIS.

5. If fraud or theft is suspected as part of security incident detection, the person detecting the incident shall follow their respective system policies concerning the control of fraud and fraudulent actions.

6. If there is a substantial likelihood that security incidents could be propagated to other systems beyond departmental control, System Administrators or Departmental System Administrators shall report/escalate such incidents to their respective college CIS help desk as soon as an incident is identified.

7. (TAMU only) System Administrators shall file an after-action report to the Information Technology Risk Management (ITRM) office of TAMU CIS by e-mail to security@tamu.edu.

SECURITY MEASURES FOR NONEMPLOYEES

All subcontractors, researchers, and others who will have access to the systems employed in support of this contract are required to follow all of the policies of the respective organizations with the exception of the following for TAMU: The requirement that all users must attend an IT Acceptable Use Policy presentation or attend yearly security awareness training is waived for itinerant (short term) use of Internet access or if a visitor is at TAMU only for a short-term visit (less than 4 weeks).

APPENDIX II: RECOMMENDED IODP-USIO PROGRAM OF INSURANCE

TAMRF will provide risk management services to the USIO, including insurance policy monitoring, ongoing risk assessments, marine insurance negotiations, and claims settlement. TAMRF's established relationships with the London insurance market, coupled with the Program's safety history, enable TAMRF to obtain cost-effective premiums. TAMRF has used market relationships, attention to detail, and clear communication to educate insurance brokers and underwriters to the specific risks involved in deep-ocean coring and to foster an understanding of risk mitigation along with differentiation from the common risks incurred during energy-related drilling.

As a result of TAMRF's proactive risk management, communication, and education, the Program's premiums have historically averaged less than the energy market, and terms and conditions for insurance coverage have been more favorable than the norm in the energy sector. The premiums in the table below are preliminary estimates subject to underwriter confirmation in late FY12. Premium negotiations include documentation and explanation of specific exposures, estimated payroll costs, estimated operational time, confirmation of valuation, and operational history. The ship owner is pricing Hull & Machinery insurance for 2013 to determine whether they will be able to obtain quotes that are comparable to the outstanding premiums historically secured by TAMRF.

The FY13 proposed program of insurance for mitigation of drilling risks and marine/employer's liability is depicted in the following table. In addition, TAMRF, on behalf of the USIO, will assess specialty risks and procure insurance if warranted.

Program of Insurance with Government Indeminification	Coverage Limits	Deductible	Estimated Annual Premiums
Hull & Machinery and Removal of Wreck[1]	$190,000,000	$250,000	$1,013,162
Control of Well	$25,000,000	$50,000	$146,878
Seepage & Pollution Liability[2]	$1,000,000	$50,000	$0
Cargo	$5,000,000	$25,000	$63,858
Third Party Property/Equipment	$10,000,000	$25,000	$40,391
Charterer's Legal Liability	$1,000,000	$10,000	$14,000
Contractor's Pollution Liability—Gradual	$10,000,000	$1,000,000	$33,989
Umbrella	$200,000,000	Per underlying limits	$371,030
Worker's Compensation & Maritime Employer's Liability	$1,000,000	None	$81,010
Comprehensive General & Automobile Liability	$1,000,000	None	$27,234
TOTAL			**$1,791,552**

[1] Carried by ship subcontractor (ODL) and reimbursed by TAMRF.

[2] Included in Control of Well Policy and covered under the Umbrella.

APPENDIX III: FY13 USIO SCIENCE OPERATING COSTS BY INSTITUTION

FY13 USIO SOC WBE BUDGET SUMMARY BY INSTITUTION

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Management and Administration	256,831	104,828	180,032	541,691
Technical, Engineering, and Science Support	0	0	0	0
Engineering Development	0	0	0	0
Core Curation	0	0	388,738	388,738
Data Management	0	183,252	587,807	771,059
Publications	0	0	1,289,865	1,289,865
Education	0	0	0	0
Outreach	0	0	0	0
Total FY13 USIO SOC Budget	**$256,831**	**$288,080**	**$2,446,442**	**$2,991,353**
Total Direct Costs	168,294	199,165	2,361,512	2,728,971
Indirect Costs and Administrative Fees	88,537	88,915	84,930	262,382
Grand Total FY13 USIO SOC Budget	**$256,831**	**$288,080**	**$2,446,442**	**$2,991,353**

Notes: Ocean Leadership Indirect Costs are included in the Management and Administration (M&A), Education, and Outreach elements. LDEO Indirect Costs are included in the M&A; Technical, Engineering, and Science Support; and Data Management elements. The TAMU Administrative Fee is included in the M&A element.

FY13 USIO SOC WBE BUDGET DETAIL BY INSTITUTION

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Management and Administration				
Salaries and Fringes	156,294	57,356	83,336	296,986
Travel	5,000	8,013	6,191	19,204
Supplies	1,000	600	925	2,525
Shipping	1,000	36	135	1,171
Communication	5,000	740	1,250	6,990
Contractual Services	0	0	0	0
Equipment	0	0	50	50
Other Direct Costs	0	1,770	3,215	4,985
Total Direct Costs	168,294	68,515	95,102	331,911
Modified Total Direct Costs (if applicable)	0	68,515	0	68,515
Indirect Costs or Administrative Fees	88,537	36,313	84,930	209,780
Total Management and Administration	**$256,831**	**$104,828**	**$180,032**	**$541,691**
Technical, Engineering, and Science Support				
Salaries and Fringes	0	0	0	0
Travel	0	0	0	0
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Day Rate	*0*	*0*	*0*	*0*
Fuel and Lubricants	*0*	*0*	*0*	*0*
Per Diem	*0*	*0*	*0*	*0*
Port Calls	*0*	*0*	*0*	*0*
Insurance	*0*	*0*	*0*	*0*
Travel—ODL	*0*	*0*	*0*	*0*
Other	*0*	*0*	*0*	*0*
Total Direct Costs	0	0	0	0
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Technical, Engineering, and Science Support	**$0**	**$0**	**$0**	**$0**
Engineering Development				
Salaries and Fringes	0	0	0	0
Travel	0	0	0	0
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Total Direct Costs	0	0	0	0
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Engineering Development	**$0**	**$0**	**$0**	**$0**

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FY13 USIO SOC WBE BUDGET DETAIL BY INSTITUTION (CONTINUED)

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Core Curation				
Salaries and Fringes	0	0	280,925	280,925
Travel	0	0	46,125	46,125
Supplies	0	0	26,250	26,250
Shipping	0	0	18,750	18,750
Communication	0	0	2,625	2,625
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	14,063	14,063
Core Curation Total Direct Costs	0	0	388,738	388,738
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Core Curation	**$0**	**$0**	**$388,738**	**$388,738**
Data Management				
Salaries and Fringes	0	61,520	447,716	509,236
Travel	0	2,080	38,875	40,955
Supplies	0	10,560	4,900	15,460
Shipping	0	840	295	1,135
Communication	0	980	5,835	6,815
Contractual Services	0	0	0	0
Equipment	0	30,800	24,677	55,477
Other Direct Costs	0	23,870	65,509	89,379
Total Direct Costs	0	130,650	587,807	718,457
Modified Total Direct Costs (if applicable)	0	99,250	0	99,250
Indirect Costs or Administrative Fees	0	52,602	0	52,602
Total Data Management	**$0**	**$183,252**	**$587,807**	**$771,059**
Publications				
Salaries and Fringes	0	0	1,198,390	1,198,390
Travel	0	0	40,400	40,400
Supplies	0	0	30,150	30,150
Shipping	0	0	3,400	3,400
Communication	0	0	8,000	8,000
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	9,525	9,525
Total Direct Costs	0	0	1,289,865	1,289,865
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Publications	**$0**	**$0**	**$1,289,865**	**$1,289,865**

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FY13 USIO SOC WBE BUDGET DETAIL BY INSTITUTION (CONTINUED)

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Education				
Salaries and Fringes	0	0	0	0
Travel	0	0	0	0
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Total Direct Costs	0	0	0	0
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Education	**$0**	**$0**	**$0**	**$0**
Outreach				
Salaries and Fringes	0	0	0	0
Travel	0	0	0	0
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Total Direct Costs	0	0	0	0
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Outreach	**$0**	**$0**	**$0**	**$0**
Grand Total Direct Costs	168,294	199,165	2,361,512	2,728,971
Indirect Costs/Administrative Fee	88,537	88,915	84,930	262,382
TOTAL FY13 USIO SOC BUDGET	**$256,831**	**$288,080**	**$2,446,442**	**$2,991,353**