INTERNATIONAL OCEAN DISCOVERY PROGRAM
United States Implementing Organization

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

FY14 ANNUAL PROGRAM PLAN to NSF

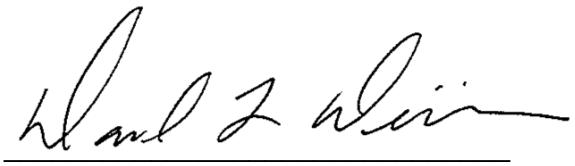
For Time Period
1 October 2013 to 30 September 2014

Amount Proposed FY14: $64,499,800

International Ocean Discovery Program
United States Implementing Organization

2 July 2013

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 FY14 Annual Program Plan to the National Science Foundation (NSF) defines the U.S. Implementing Organization (USIO) scope of work for FY14 International Ocean Discovery 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 25 April 2013 for the USIO by the U.S. National Science Foundation (NSF) and (2) the USIO operations schedule that was approved by the Operations Task Force (OTF) in May 2012 and the Science Implementation and Policy Committee (SIPCom) in June 2012. 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 of the USIO, which from FY05 through FY13 complemented the contract with NSF for platform operating costs. A one-year contract extension (i.e., 1 October 2013–30 September 2014) was approved by NSF in July 2012 for the operations and management of the *JOIDES Resolution* during the first year of the new International Ocean Discovery Program.

The USIO FY14 Annual Program Plan to NSF was developed in consultation with the USIO subcontractors under guidance from NSF. This Annual Program Plan 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 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. “Appendix I: 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. “Appendix II: Recommended IODP-USIO Program of Insurance” provides information on risk management services provided to the USIO by TAMRF, including insurance policy monitoring, ongoing risk assessments, marine insurance negotiations, and claims settlement.

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

Appendix III: IODP-USIO FY15–FY17 Closeout Plan Overview will be submitted on 1 August 2013.

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, 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 FY14 ACTIVITIES

1.2.1. Summary of FY14 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 FY14 BUDGET DEFINITIONS

1.3.1. NSF Guidance

As called for in NSF Contract OCE-0352500, NSF provided guidance to the USIO that outlined the FY14 Mission Forecast for the USIO as the U.S. System Integration Contractor for IODP. The mission forecast included guidance to conduct three expeditions in FY14 and a budget range of $60,000,000–$64,500,000. This Annual Program Plan reflects the NSF guidance to conduct three expeditions and their associated costs. We also provide the incremental costs of adding a fourth expedition to the operations schedule, recognizing that funding for that expedition will need to be obtained from the People's Republic of China**.**

1.3.2. FY14 USIO Budget Assumptions

The total budget request of $64,499,800 includes costs to support USIO facility operations; costs to fund science operations at sea and all costs in support of these operations such as planning, logistics, engineering science support, etc.; core curation tasks at the Gulf Core Repository (GCR), publications tasks, and shore-based data management tasks that were funded by IODP-MI in previous years; costs that cover USIO efforts for education, outreach, and associated management and administrative support; and other Program integration costs in support of maintaining U.S. capability for continued scientific ocean drilling in IODP.

The USIO has provided our best-effort estimate of FY14 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 FY14 fuel costs;

however, market conditions are subject to fluctuations that may result in a need for supplemental funding during the period of operations.

2. FY14 USIO BUDGET TABLES

2.1. INTRODUCTION

The budget summaries and detailed budgets in this section describe the overall USIO FY14 requests 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. FY14 USIO 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. FY14 USIO 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. FY14 USIO BUDGET SUMMARY

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Management and Administration	1,425,216	825,259	2,505,764	4,756,239
Technical, Engineering, and Science Support	0	4,668,114	48,857,286	53,525,400
Engineering Development	90,420	0	0	90,420
Core Curation	493,471	0	542,072	1,035,543
Data Management	0	935,235	2,517,280	3,452,515
Publications	0	0	1,389,727	1,389,727
Education	185,567	0	0	185,567
Outreach	64,390	0	0	64,390
Total FY14 USIO Budget	**$2,259,063**	**$6,428,608**	**$55,812,129**	**$64,499,800**
Total Direct Costs	1,691,210	5,343,882	55,378,137	62,413,229
Indirect Costs and Administrative Fees	567,853	1,084,726	433,992	2,086,571
Grand Total FY14 USIO Budget	**$2,259,063**	**$6,428,608**	**$55,812,129**	**$64,499,800**

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. FY14 USIO BUDGET DETAIL

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Management and Administration				
Salaries and Fringes	869,789	511,168	1,811,798	3,192,755
Travel	95,000	13,627	108,000	216,627
Supplies	5,000	5,000	16,000	26,000
Shipping	4,500	300	2,500	7,300
Communication	12,000	4,880	21,000	37,880
Contractual Services	0	0	0	0
Equipment	0	0	1,000	1,000
Other Direct Costs	0	4,410	111,474	115,884
Total Direct Costs	986,289	539,385	2,071,772	3,597,446
Modified Total Direct Costs (if applicable)	0	539,385	0	539,385
Indirect Costs or Administrative Fees	438,927	285,874	433,992	1,158,793
Total Management and Administration	**$1,425,216**	**$825,259**	**$2,505,764**	**$4,756,239**
Technical, Engineering, and Science Support				
Salaries and Fringes	0	746,997	6,029,785	6,776,782
Travel	0	79,893	729,800	809,693
Supplies	0	38,263	2,798,645	2,836,908
Shipping	0	11,447	841,890	853,337
Communication	0	5,460	265,325	270,785
Contractual Services	0	3,276,831	0	3,276,831
Equipment	0	0	1,279,250	1,279,250
Other Direct Costs	0	27,275	36,912,591	36,939,866
Day Rate	*0*	*0*	*26,005,323*	*26,005,323*
Fuel and Lubricants	*0*	*0*	*4,902,291*	*4,902,291*
Per Diem	*0*	*0*	*564,396*	*564,396*
Port Calls	*0*	*0*	*2,208,322*	*2,208,322*
Insurance	*0*	*0*	*1,273,363*	*1,273,363*
Travel—ODL	*0*	*0*	*1,116,016*	*1,116,016*
Other	*0*	*27,275*	*842,880*	*870,155*
Total Direct Costs	0	4,186,166	48,857,286	53,043,452
Modified Total Direct Costs (if applicable)	0	909,335	0	909,335
Indirect Costs or Administrative Fees	0	481,948	0	481,948
Total Technical, Engineering, and Science Support	**$0**	**$4,668,114**	**$48,857,286**	**$53,525,400**
Engineering Development				
Salaries and Fringes	0	0	0	0
Travel	44,000	0	0	44,000
Supplies	2,000	0	0	2,000
Shipping	0	0	0	0
Communication	2,000	0	0	2,000
Contractual Services	18,000	0	0	18,000
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Total Direct Costs	66,000	0	0	66,000
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	24,420	0	0	24,420
Total Engineering Development	**$90,420**	**$0**	**$0**	**$90,420**

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

FY14 USIO BUDGET DETAIL, CONTINUED

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Core Curation				
Salaries and Fringes	0	0	398,272	398,272
Travel	0	0	38,000	38,000
Supplies	0	0	38,500	38,500
Shipping	0	0	15,000	15,000
Communication	0	0	4,000	4,000
Contractual Services	456,471	0	0	456,471
Equipment	0	0	18,000	18,000
Other Direct Costs	0	0	30,300	30,300
Total Direct Costs	456,471	0	542,072	998,543
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	37,000	0	0	37,000
Total Core Curation	**$493,471**	**$0**	**$542,072**	**$1,035,543**
Data Management				
Salaries and Fringes	0	522,568	1,497,106	2,019,674
Travel	0	3,303	90,000	93,303
Supplies	0	36,500	31,036	67,536
Shipping	0	2,100	800	2,900
Communication	0	2,960	28,000	30,960
Contractual Services	0	0	0	0
Equipment	0	20,400	419,377	439,777
Other Direct Costs	0	30,500	450,961	481,461
Total Direct Costs	0	618,331	2,517,280	3,135,611
Modified Total Direct Costs (if applicable)	0	597,931	0	597,931
Indirect Costs or Administrative Fees	0	316,904	0	316,904
Total Data Management	**$0**	**$935,235**	**$2,517,280**	**$3,452,515**
Publications				
Salaries and Fringes	0	0	1,283,382	1,283,382
Travel	0	0	43,200	43,200
Supplies	0	0	14,820	14,820
Shipping	0	0	1,100	1,100
Communication	0	0	6,000	6,000
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	41,225	41,225
Total Direct Costs	0	0	1,389,727	1,389,727
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
Total Publications	**$0**	**$0**	**$1,389,727**	**$1,389,727**

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

FY14 USIO BUDGET DETAIL, CONTINUED

Element/Expense Category	Ocean Leadership	LDEO	TAMU	Total
Education				
Salaries and Fringes	0	0	0	0
Travel	45,000	0	0	45,000
Supplies	4,000	0	0	4,000
Shipping	5,000	0	0	5,000
Communication	2,000	0	0	2,000
Contractual Services	52,450	0	0	52,450
Equipment	2,000	0	0	2,000
Other Direct Costs	25,000	0	0	25,000
Total Direct Costs	135,450	0	0	135,450
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	50,117	0	0	50,117
Total Education	**$185,567**	**$0**	**$0**	**$185,567**
Outreach				
Salaries and Fringes	0	0	0	0
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	20,000	0	0	20,000
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
Total Direct Costs	47,000	0	0	47,000
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	17,390	0	0	17,390
Total Outreach	**$64,390**	**$0**	**$0**	**$64,390**
Grand Total Direct Costs	1,691,210	5,343,882	55,378,137	62,413,229
Grand Total Indirect Costs/Administrative Fee	567,853	1,084,726	433,992	2,086,571
Total FY14 USIO budget	**$2,259,063**	**$6,428,608**	**$55,812,129**	**$64,499,800**

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 a contract 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 5 July 2013 plus projected FTEs for FY14. 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. FY14 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.

3.2.1. FY14 USIO FTE Allocation Summary

FTEs by Work Breakdown Elements								
USIO Office	**M&A**	**TESS**	**ED**	**CC**	**DM**	**Pubs**	**Otrch**	**Total**
Ocean Leadership	4.35	0.00	0.00	0.00	0.00	0.00	0.00	4.35
LDEO	4.17	8.76	0.00	0.00	4.71	0.00	0.00	17.63
TAMU	5.00	63.00	0.00	3.93	18.00	19.00	0.00	108.93
Totals	**13.52**	**71.76**	**0.00**	**3.93**	**22.71**	**19.00**	**0.00**	**130.91**

Total FTEs by Expense Category			
USIO Office	**NSF**	**Other**	**Total**
Ocean Leadership	4.35	0.00	4.35
LDEO	17.63	0.00	17.63
TAMU	108.93	0.07	109.00
Totals	**130.91**	**0.07**	**130.98**

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; Otrch = Outreach; Other = efforts funded by other sources (e.g., San Andreas Fault Observatory at Depth [SAFOD], etc.). Student workers and TAMRF administrative support staff are not included in the table.

3.2.2. FY14 USIO FTE Allocation Detail

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Bob Gagosian	President and Chief Executive Officer	Ocean Leadership	12.5%	0%	0%	0%	0%	0%	0%	12.5%	13%	0%	12.5%
Colin Reed	Executive Assistant	Ocean Leadership	12.5%	0%	0%	0%	0%	0%	0%	12.5%	13%	0%	12.5%
David Divins	Director, Ocean Drilling Programs	Ocean Leadership	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Greg Myers	Senior Technical Expert	Ocean Leadership	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Doug Fils	Technical Expert	Ocean Leadership	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Margo Morell	Assistant Director, Ocean Drilling Programs	Ocean Leadership	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Julie Farver	Manager, Travel Services	Ocean Leadership	10%	0%	0%	0%	0%	0%	0%	10%	10%	0%	10%
TOTAL Ocean Leadership FTEs			**4.35**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.35**	**4.35**	**0.00**	**4.35**
Dave Goldberg	Director	LDEO	67%	0%	0%	0%	0%	0%	0%	67%	67%	0%	67%
Maria Bouzeas	Administrative Assistant	LDEO	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Mary Reagan	Deputy Director	LDEO	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Simon Draper	Office Coordinator	LDEO	0%	42%	0%	0%	0%	0%	0%	42%	42%	0%	42%
Carl Brenner	Technical Services Specialist	LDEO	50%	0%	0%	0%	0%	0%	0%	50%	50%	0%	50%
David Grames	Project Coordinator	LDEO	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Sarah Davies	Logging Consortium Chief Scientist	LDEO	0%	8%	0%	0%	0%	0%	0%	8%	8%	0%	8%
Walt Masterson	Engineering/ Logistics Coordinator	LDEO	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Engineering Project Coordinator	LDEO	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%

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., San Andreas Fault Observatory at Depth [SAFOD], etc.); TBN = to be named. We anticipate filling all TBN positions before or during FY14. Student workers and TAMRF administrative support staff are not included in the table. (Continued on next seven pages.)

3.2.2. FY14 USIO FTE Allocation Detail, continued

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Gerardo Iturrino	Manager, Engineering and Technical Services	LDEO	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Alberto Malinverno	Principal Scientist	LDEO	0%	50%	0%	0%	0%	0%	0%	50%	50%	0%	50%
Laureen Drab	Logging Staff Scientist	LDEO	0%	75%	0%	0%	0%	0%	0%	75%	75%	0%	75%
Annick Fehr	Logging Staff Scientist	LDEO	0%	17%	0%	0%	0%	0%	0%	17%	17%	0%	17%
Gilles Guerin	Logging Staff Scientist	LDEO	0%	75%	0%	0%	0%	0%	0%	75%	75%	0%	75%
Johanna Lofi	Logging Staff Scientist	LDEO	0%	42%	0%	0%	0%	0%	0%	42%	42%	0%	42%
Annette McGrath	Logging Staff Scientist	LDEO	0%	42%	0%	0%	0%	0%	0%	42%	42%	0%	42%
Sally Morgan	Logging Staff Scientist	LDEO	0%	75%	0%	0%	0%	0%	0%	75%	75%	0%	75%
Angela Slagle	Logging Staff Scientist	LDEO	0%	75%	0%	0%	0%	0%	0%	75%	75%	0%	75%
Trevor Williams	Logging Staff Scientist	LDEO	0%	58%	0%	0%	0%	0%	0%	58%	58%	0%	58%
TBN	Logging Staff Scientist	LDEO	0%	17%	0%	0%	0%	0%	0%	17%	17%	0%	17%
Dan Quoidbach	Manager, Information Services	LDEO	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Ted Baker	Systems Analyst/ Database Administrator	LDEO	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Golam Sarkar	Technical Analyst	LDEO	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Cristina Broglia	Supervisor, Data Services	LDEO	0%	0%	0%	0%	50%	0%	0%	50%	50%	0%	50%
Tanzhuo Liu	Senior Log Analyst	LDEO	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Bob Arko	Database Developer	LDEO	0%	0%	0%	0%	21%	0%	0%	21%	21%	0%	21%
TOTAL LDEO FTEs			**4.17**	**8.76**	**0.00**	**0.00**	**4.71**	**0.00**	**0.00**	**17.63**	**17.63**	**0.00**	**17.63**
Brad Clement	Director	TAMU	50%	0%	0%	0%	0%	0%	0%	50%	50%	0%	50%
Christina Peery	Administrative Assistant	TAMU	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Manager, IODP Business Services	TAMU	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Adam Davidson	Supervisor, IODP Human Resources	TAMU	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%

Note: Continued on next six pages.

3.2.2. FY14 USIO FTE Allocation Detail, continued

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Ollie Berka	Human Resources Representative	TAMU	100%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%
John Firth	Curator	TAMU	0%	0%	0%	93%	0%	0%	0%	93%	93%	7%	100%
Phil Rumford	Superintendent, GCR	TAMU	0%	0%	0%	100%	0%	0%	0%	100%	100%	0%	100%
Chad Broyles	Curatorial Specialist II	TAMU	0%	0%	0%	100%	0%	0%	0%	100%	100%	0%	100%
Gemma Maxwell	Curatorial Specialist II	TAMU	0%	0%	0%	100%	0%	0%	0%	100%	100%	0%	100%
Mitch Malone	Assistant Director/ Manager, Science Operations	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Janice Muston	Administrative Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Supervisor, Engineering Services	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Kevin Grigar	Senior Staff Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Bob Aduddell	Staff Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Liping Chen	Senior Design Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Dean Ferrell	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Mike Meiring	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Eric Schulte	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Karen Graber	Staff Researcher	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Mike Storms	Supervisor, Operations Support	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Steve Midgley	Operations Superintendent	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Operations Superintendent	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Dave Lehnert	Materials Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Robert Mitchell	Marine Logistics Coordinator	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Tyrone Brashear	Materials Technician	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Sandy Dillard	Shipping and Receiving Coordinator	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Adam Klaus	Supervisor, Science Support	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%

Note: Continued on next five pages.

3.2.2. FY14 USIO FTE Allocation Detail, continued

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Carlos Alvarez-Zarikian	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Peter Blum	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Kara Bogus	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Denise Kulhanek	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Katerina Petronotis	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Leah Schneider	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Jay Miller	Manager, Technical and Analytical Services	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
John Miller	Business Coordinator II	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
David Houpt	Supervisor, Analytical Systems	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Lisa Brandt	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Helen Evans	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Thomas Gorgas	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Maggie Hastedt	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Sandra Herrmann	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Yulia Vasilyeva	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Michael Bertoli	Research Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Ty Cobb	Research Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Rachel Gray	Research Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
John Beck	Senior Imaging Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Bill Crawford	Senior Imaging Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Brad Julson	Supervisor, Technical Support	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Roy Davis	Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Bill Mills	Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%

Note: Continued on next four pages.

3.2.2. FY14 USIO FTE Allocation Detail, continued

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Tim Bronk	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Lisa Crowder	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Chieh Peng	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
TBN	Assistant Laboratory Officer	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Heather Barnes	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Kristin Hillis Bronk	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Emily Fisher	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Ted Gustafson	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Matt Knight	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Gabe Matson	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Erik Moortgat	Marine Laboratory Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Etienne Claassen	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Randy Gjesvold	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Jurie Kotze	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Garrick Van Rensburg	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Jim Rosser	Manager, Development, IT, and Databases	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%

Note: Continued on next three pages.

3.2.2. FY14 USIO FTE Allocation Detail, continued

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Denise Ponzio	Information Technology Professional I	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Phil Gates	Supervisor, Information Technology Support	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Cesar Flores	Senior Systems Administrator	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Jennifer Hutchinson	Senior Information Technology Professional I	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Matt Nobles	Senior Information Technology Professional I	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Mike Petersen	Information Technology Professional II	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
John Baldwin	Systems Support Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
James Cordray	Information Technology Professional I	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Chuck Haddick	Senior Information Technology Associate	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Mike Hodge	Associate Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Grant Banta	Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Michael Cannon	Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
TBN	Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Paul Foster	Supervisor, Applications Development	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
David Fackler	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%

Note: Continued on next two pages.

3.2.2. FY14 USIO FTE Allocation Detail, continued

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Dwight Hornbacher	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Algie Morgan	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
James Zhao	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Rui Wang	Applications Developer II	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
John Howell	Applications Developer I	TAMU	0%	100%	0%	0%	0%	0%	0%	100%	100%	0%	100%
Rakesh Mithal	Supervisor, Databases/ Archives	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Saranavan Nagarajan	Senior Software Applications Developer	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Don Sims	Data Analyst	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
TBN	Systems Analyst II	TAMU	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	100%
Angie Miller	Manager, Publication Services	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Lorri Peters	Supervisor, Editing	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Ginny Lowe	Editor IV	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Amy McWilliams	Editor IV	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Jenni Hesse	Editor III	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Shana Lewis	Editor III	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Gigi Delgado	Senior Publications Coordinator	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Jaime Gracia	Supervisor, Production	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Patrick Edwards	Production Specialist IV	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Kenneth Sherar	Production Specialist III	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Crystal Wolfe	Production Specialist III	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Ann Yeager	Distribution Specialist I	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Debbie Partain	Supervisor, Graphics	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Rhonda Kappler	Graphics Specialist III	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Tim Fulton	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%

Note: Continued on next page.

3.2.2. FY14 USIO FTE Allocation Detail, continued

Position			% Work Breakdown Elements								% Effort Totals		
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Otrch	Total	NSF	Other	Total
Alyssa Stephens	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
Jean Wulfson	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
TBN	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
TBN	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	100%	100%	0%	100%
TOTAL TAMU FTEs			**5.00**	**63.00**	**0.00**	**3.93**	**18.00**	**19.00**	**0.00**	**108.93**	**108.93**	**0.07**	**109.00**
GRAND TOTAL USIO FTEs			**13.52**	**71.76**	**0.00**	**3.93**	**22.71**	**19.00**	**0.00**	**130.91**	**130.91**	**0.07**	**130.98**

4. EXPEDITION OPERATIONS

4.1. INTRODUCTION

This Annual Program Plan is based on the operations schedule published 13 January 2012, including one dry dock/non-IODP period.

28 September 2013–28 January 2014	Dry dock/non-IODP period
28 January–30 March 2014	*Expedition 349: South China Sea**
30 March–30 May 2014	Expedition 350: Izu Bonin Mariana: Reararc
30 May–30 July 2014	Expedition 351: Izu Bonin Mariana: Arc Origins
30 July–29 September 2014	Expedition 352: Izu Bonin Mariana: Forearc

*Not included in the base Annual Program Plan budget.

4.2. OPERATIONS

4.2.1. Expedition 349: South China Sea (Complementary Project)

Proposed Operations

The following text describes operations for Expedition 349: South China Sea if funding becomes available for this Complementary Project Proposal (CPP). The estimated incremental cost of adding this expedition is $2,326,963.

Based on IODP Proposal 735-CPP2, Expedition 349 addresses the history and mechanisms of opening of the South China Sea (SCS) and its implications for East Asian and western Pacific tectonic and paleoenvironmental evolution. This expedition will core through the sediment and 100 m into the oceanic basalts at three sites in two different subbasins, with total penetrations ranging from 0.7 to 1.9 km in 3.3–4.4 km water depths, to determine the breakup and basin formation history since the late Mesozoic. Geochemical sampling of basement rocks at different ages within different magnetic zones and around key tectonic events will provide critical information on how the crust and mantle evolve at various stages of basin evolution.

Scientific objectives are to (1) establish the complex opening history of different subbasins and styles of oceanic crustal accretion of the SCS; (2) test various hypotheses of dynamic processes controlling transitions from a Mesozoic active continental margin to a Cenozoic passive one, and constrain whether the forces driving the opening of the SCS were far-field, near-field, or in-situ; (3) reveal the crustal nature and affinities of different subbasins, and understand oceanic crustal and deep mantle processes associated with tectonic extrusion, magmatism, and magnetization; (4) develop a complete 3D sedimentation and subsidence model and link it to regional climatic processes in response to various tectonic events; and (5) integrate these results to add to our general understanding of the geodynamic interplay of mantle and lithosphere processes that lead to the development of continental margins.

Logistics

Operations for Expedition 349 are budgeted based on an estimated 61 days (3 in port, 5 in transit, and 53 in operations).

4.2.2. Expedition 350: Izu Bonin Mariana: Rearc

Proposed Operations

Based on IODP Proposal 697-Full3, Expedition 350 aims to understand crustal genesis and mantle evolution of the Izu-Bonin-Mariana (IBM) rearc system by examining sediments and crust in the Philippine Sea. The primary objective—to obtain a temporal history of across-arc variation in magma composition during five main intervals of arc evolution—will be achieved by drilling a single site through 1200 m of turbidites and volcanoclastic sediments and as much as 150 m of basement.

Logistics

Operations for Expedition 350 are budgeted based on an estimated 61 days (5 in port, 4 in transit, and 52 in operations).

4.2.3. Expedition 351: Izu Bonin Mariana: Arc Origins

Proposed Operations

Based on IODP Proposal 695-Full2, Expedition 351 will examine the inception and evolution of the IBM arc by obtaining a sedimentary (~1300 m) and crustal (~150 m) record from the Amami Sankaku Basin.

The primary objectives are to (1) examine the petrology and age of the crust to infer the geochemistry of the mantle prior to IBM arc inception and determine the mantle source of the arc foundation; (2) obtain records of IBM arc inception and growth, late Mesozoic–early Paleogene eastern Tethys paleoceanography, and East Asian monsoon conditions during the Neogene; and (3) determine if early uplift or subsidence was associated with subduction initiation.

Logistics

Operations for Expedition 351 are budgeted based on an estimated 61 days (5 in port, 5 in transit, and 51 in operations).

4.2.4. Expedition 352: Izu Bonin Mariana: Forearc

Proposed Operations

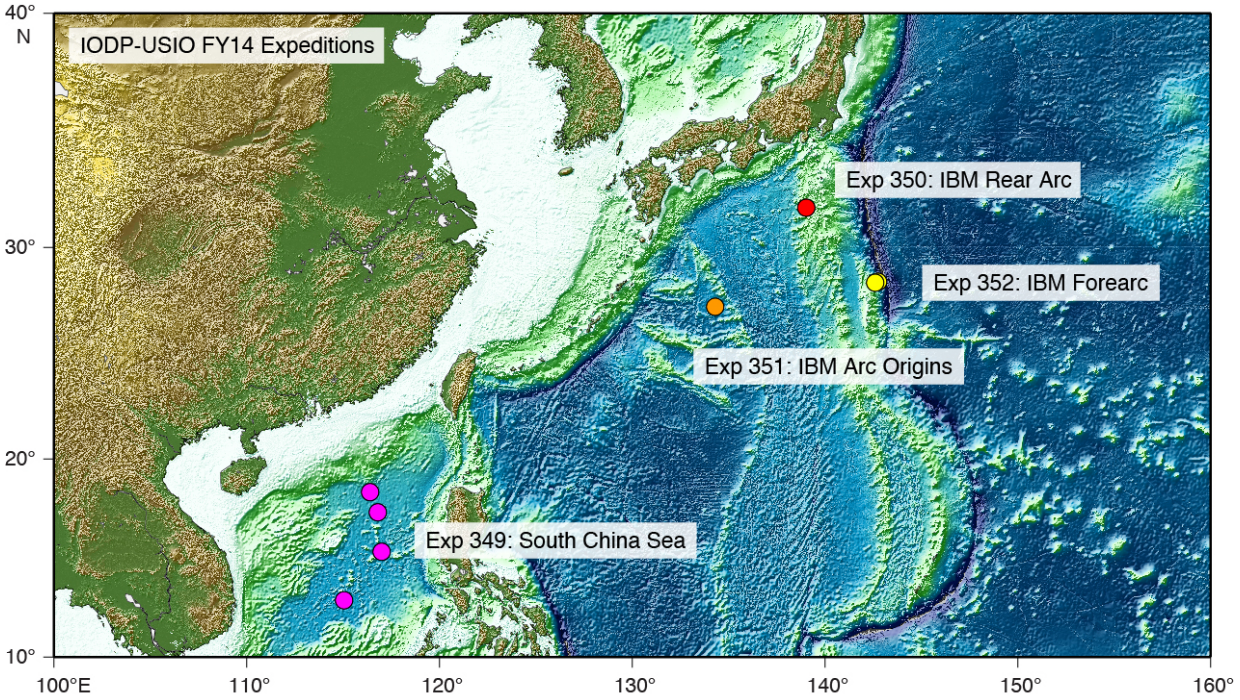
Expedition 352, based on IODP Proposal 696-Full4, aims to examine early processes in magmatic evolution, chemostratigraphy, and arc crustal accretion that are associated with subduction initiation at intra-oceanic convergence plate margins. The objectives will be achieved by coring through the sediment and into the volcanic stratigraphy at two sites on the outer Izu-Bonin-Mariana (IBM) forearc trench system, with total penetrations of ~1 km in oceanic crust in water depths between 3.1 and 4.8 km.

Scientific objectives are to (1) obtain a high-fidelity record of magmatic evolution during subduction initiation by coring volcanic rocks down to underlying intrusive rocks, including obtaining radiometric and biostratigraphic ages; (2) understand the chemical gradients within the rock units and across their transitions, as well as their tectonic significance; and (3) provide empirical constraints for subduction initiation geodynamic models by examining how mantle melting processes evolve from early decompression melting of fertile asthenosphere to late flux melting of depleted mantle. Results from these objectives will help to test the hypotheses that (1) “forearc basalt” tholeiites lie beneath boninites and (2) forearc lithosphere created during subduction initiation is the birthplace of suprasubduction zone ophiolites.

Logistics

Operations for Expedition 352 are budgeted based on an estimated 61 days (5 in port, 6 in transit, and 50 in operations).

4.3. IODP-USIO FY14 SITE MAP



4.4. EXPEDITION OPERATIONS BUDGET

Expense Category	Non-IODP	Expedition 350: Izu Bonin Mariana: Rearc	Expedition 351: Izu Bonin Mariana: Arc Origins	Expedition 352: Izu Bonin Mariana: Forearc	TBD	Total
	180 days[1]	**61 days**	**61 days**	**61 days**	**2 days[2]**	**365 days**
Ship Operations						
Day Rate	12,492,230	4,455,147	4,458,097	4,458,097	141,752	26,005,323
Communications	116,620	39,194	39,194	39,219	1,258	235,485
Fuel and Lubricants[3]	1,344,590	1,326,366	1,108,850	1,106,498	15,989	4,902,291
Per Diem	210,528	116,681	116,681	116,681	3,826	564,396
Port Calls	1,240,931	238,491	242,668	242,668	243,565	2,208,323
Insurance[4]	430,916	277,780	277,780	277,780	9,108	1,273,363
Travel—ODL	372,005	186,003	186,003	186,003	186,003	1,116,016
Other Expenses—ODL	6,000	4,000	16,500	4,000	0	30,500
Contractual Services						
Schlumberger	1,746,023	591,700	591,700	591,700	19,400	3,540,523
Total	**17,959,844**	**7,235,361**	**7,037,472**	**7,022,645**	**620,899**	**39,876,220**

[1] FY14 portion of non-IODP period, which is scheduled to begin 28 September 2013 at a to-be-determined location.
[2] The current schedule reflects the final FY14 expedition ending on 29 September 2014 in Okinawa, Japan.
[3] The amount for the non-IODP period does not include the cost of 500 metric tons of fuel to be purchased in FY13.
[4] Insurance costs are based on actual premiums paid for FY13 coverage, with the Hull & Machinery premium discount adjusted for the variance in non-IODP days.

Costs included in this budget cover activities in support of the USIO FY14 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 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 FY14 expeditions and long-lead hardware for FY15 expeditions.

Shipping—Postage, express mail, and freight.

Costs for shipments to and from FY14 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. 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.

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-All Urban Consumers (CPI-U) and Employment Cost Index (ECI). The amount is based on 365 days, which includes one non-IODP/dry dock period from 1 October 2013 to 29 March 2014 (FY14 portion) at a to-be-determined (TBD) location. The operating/transiting and standby day rates, respectively, are $71,756 and $69,401 for the first six months of FY14 and $73,281 and $70,876 for the remainder of FY14. The budget allows for one CPI-U and one ECI base adjustment of 2.5%, effective 1 April 2014.

Fuel and Lubricants—Fuel for the riserless vessel.

FY14 ship operations fuel purchases are estimated at a total of 4,718 metric tons: 1,180 at a TBD location during the 180-day dry dock/tie-up period; 1,165 in Manila, Philippines; 1,165 in Okinawa, Japan; and two refuelings of 1,179 and 1,194 in Yokohama, Japan. Price per metric ton is based on prices quoted by Bunkerworld on 12 April 2013 for the locations specified (note: for budgeting purposes, the price quote for Manila was used for the TBD location).

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 non-transit and non-IODP periods. The number of personnel on board during the non-IODP period was estimated based on the average daily staffing schedule during the non-IODP period in FY13 (17 persons), at a cost of $68.80/day/person (the lower the number on board, the higher the daily rate per person). 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 a TBD location for the 180-day non-IODP period (for budgeting purposes, Manila was assumed as the location); TBD location (5 days); Yokohama, Japan (2 port calls of 5 days each); and Okinawa, Japan (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, Foreign 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 H&M coverage are discounted 50% during the non-IODP periods, which total 119 days in FY14.

Travel–ODL—Subcontractor transportation.

Airfare for ship subcontractor's crews to/from six scheduled crew changes—two at the TBD location (for budgeting purposes, Manila was assumed as the location) during the non-IODP/dry dock period; TBD location for the Izu Bonin Mariana: Rearc expedition; two in Yokohama, Japan, for the Izu Bonin Mariana: Arc Origins and Izu Bonin Mariana: Forearc expeditions; and one in Okinawa, Japan, for a TBD expedition. 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.

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

Costs for possible medical evacuations ($25,000) and miscellaneous reimbursable supplies and maintenance costs ($5,500) payable to the ship subcontractor.

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.

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 FY14 have already been paid, so these subcontracts are not subject to indirect cost during FY14. 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 FY14

- 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 *JOIDES Resolution* Facility Board, IODP advisory panels, Program Member Offices, and other national organizations and facility boards). Participate in IODP advisory panels, 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	**Cost**
Salaries and Fringes	3,192,755
Travel	216,627
Supplies	26,000
Shipping	7,300
Communication	37,880
Contractual Services	0
Equipment	1,000
Other Direct Costs	115,884
Relocation	*3,700*
Training	*36,000*
Business Conferences	*7,500*
Insurance	*6,000*
Services	*23,910*
TAMU Computing Services	*20,000*
Equipment Rental	*3,524*
Furniture	*6,500*
Recruiting	*2,300*
Maintenance and Repair	*5,000*
Library	*1,450*
Total Direct Costs	3,597,446
Modified Total Direct Costs (if applicable)	539,385
Indirect Costs or Administrative Fees	1,158,793
Total Management and Administration	**$4,756,239**

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.

Travel to IODP Forum and Facility Board meetings, Program advisory 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.

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).
Registration costs 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.

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 37% 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, TAMRF, and Japan Agency for Marine-Earth Science and Technology [JAMSTEC] subcontracts = $111,000).

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 FY14 have already been paid, so these subcontracts are not subject to indirect cost during FY14. 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. The USIO will also provide technical advice and logistical assistance to ESO and CDEX for Schlumberger and other logging services for their expeditions in FY14.

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 FY14 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 FY14

- 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 IODP advisory 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.
- 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	**Total**
Salaries and Fringes	6,776,782
Travel	809,693
Supplies	2,836,908
Shipping	853,337
Communication	270,785
Contractual Services	3,276,831
Equipment	1,279,250
Other Direct Costs	36,939,866
Day Rate	*26,005,323*
Fuel and Lubricants	*4,902,291*
Per Diem	*564,396*
Port Calls	*2,208,322*
Insurance	*1,273,363*
Travel—ODL	*1,116,016*
Other	*870,155*
Relocation	*95,000*
Training	*206,750*
Business Conferences	*25,500*
Insurance	*9,000*
Services	*255,775*
Equipment rental	*1,630*
Other expenses—ODL	*30,500*
Furniture	*9,000*
Recruiting	*51,000*
Maintenance and repair	*177,500*
Library	*8,500*
Total Direct Costs	53,043,452
Modified Total Direct Costs (if applicable)	909,335
Indirect Costs or Administrative Fees	481,948
Total Technical, Engineering, and Science Support	**$53,525,400**

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 FY15 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 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, FY14 expeditions, and long-lead hardware for FY15 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 FY14 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.

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), vibration-isolated television (VIT) color camera, and acquisition of parts and spare units for temperature and other downhole measurement tools. Acquisition of new analytical systems (e.g., energy dispersive spectrometer [EDS] module for scanning electron microsopy [SEM]), and capital replacement or upgrades of failed or obsolete laboratory equipment, including but not limited to cryogenic magnetometer, petrographic microscopes, linescan color spectrophotometer, fluxgate magnetometer, carver presses, freezers, incubators, refrigerators, and furnace.

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-All Urban

Consumers (CPI-U) and Employment Cost Index (ECI). The amount is based on 365 days, which includes one non-IODP/dry dock period from 1 October 2013 to 29 March 2014 (FY14 portion) at a to-be-determined (TBD) location. The operating/transiting and standby day rates, respectively, are $71,756 and $69,401 for the first six months of FY14 and $73,281 and $70,876 for the remainder of FY14. The budget allows for one CPI-U and one ECI base adjustment of 2.5%, effective 1 April 2014.

Fuel and Lubricants—Fuel for the riserless vessel.

FY14 ship operations fuel purchases are estimated at a total of 4,718 metric tons: 1,180 at a TBD location during the 180-day dry dock/tie-up period; 1,165 in Manila, Philippines; 1,165 in Okinawa, Japan; and two refuelings of 1,179 and 1,194 in Yokohama, Japan. Price per metric ton is based on prices quoted by Bunkerworld on 12 April 2013 for the locations specified (note: for budgeting purposes, the price quote for Manila was used for the TBD location).

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 non-transit and non-IODP periods. The number of personnel on board during the non-IODP period was estimated based on the average daily staffing schedule during the non-IODP period in FY13 (17 persons), at a cost of $68.80/day/person (the lower the number on board, the higher the daily rate per person). 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 a TBD location for the 180-day non-IODP period (for budgeting purposes, Manila was assumed as the location); TBD location (5 days); Yokohama, Japan (2 port calls of 5 days each); and Okinawa, Japan (5 days).

Insurance—Annual insurance premiums for subcontractor and TAMRF.

Subcontractor's premium costs for All Risks Marine H&M and ROW insurance and TAMRF premium costs for General and Automobile Liability, Foreign 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 H&M coverage are discounted 50% during the non-IODP periods, which total 119 days in FY14.

Travel–ODL—Subcontractor transportation.

Airfare for ship subcontractor's crews to/from six scheduled crew changes—two at the TBD location (for budgeting purposes, Manila was assumed as the location) during the non-IODP/dry dock period; TBD location for the Izu Bonin Mariana: Rearc expedition; two in Yokohama, Japan, for the Izu Bonin Mariana: Arc Origins and Izu Bonin Mariana: Forearc expeditions; and one in Okinawa, Japan, for a TBD expedition. 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.

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

Costs for possible medical evacuations ($25,000) and miscellaneous reimbursable supplies and maintenance costs ($5,500) payable to the ship subcontractor.

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

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

Expenses for pre-expedition, postexpedition, planning, and IODP panel 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, drilling mud study, equipment testing and calibration, upgrade to operations planner software, 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.

Furniture—Office furniture.

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

Recruiting—Employee recruitment.

Advertisements for calls for applications for shipboard science staffing; 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 FY14 have already been paid, so these subcontracts are not subject to indirect cost during FY14. 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 IODP advisory panel.

7.2. DELIVERABLES IN FY14

- USIO Technical Panel: Operate the USIO Technical Panel (UTP), through which external members from industry and academia participate in biannual 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	**Costs**
Salaries and Fringes	0
Travel	44,000
Supplies	2,000
Shipping	0
Communication	2,000
Contractual Services	18,000
Equipment	0
Other Direct Costs	0
Total Direct Costs	66,000
Modified Total Direct Costs (if applicable)	0
Indirect Costs or Administrative Fees	24,420
Total Engineering Development	**$90,420**

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, and 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 37% 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, TAMRF, and JAMSTEC subcontracts = $111,000).

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 GCR and for the NSF legacy core archived at the Kochi Core Center (KCC).

8.2. DELIVERABLES IN FY14

- Policy and Procedures: Work with other IODP facilities and the IODP advisory panel 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 KCC 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 implementing organization (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 and the IODP advisory panel, 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	**Total**
Salaries and Fringes	398,272
Travel	38,000
Supplies	38,500
Shipping	15,000
Communication	4,000
Contractual Services	456,471
Equipment	18,000
Other Direct Costs	30,300
Training	*10,000*
Business Conferences	*3,500*
Services	*9,200*
Furniture	*600*
Maintenance and Repair	*7,000*
Total Core Curation Direct Costs	998,543
Modified Total Direct Costs (if applicable)	0
Indirect Costs or Administrative Fees	37,000
Total Core Curation	**$1,035,543**

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 FY14 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—Consultant and contract services.

Contract with JAMSTEC to provide legacy core curation activities at the KCC.

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.

Furniture—Office furniture.

Replacing broken or aging office furniture.

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.

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 37% 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, TAMRF, and JAMSTEC subcontracts = $111,000).

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 FY14

- 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	**Total**
Salaries and Fringes	2,019,674
Travel	93,303
Supplies	67,536
Shipping	2,900
Communication	30,960
Contractual Services	0
Equipment	439,777
Other Direct Costs	481,461
Training	*36,500*
Business Conferences	*500*
Software	*95,000*
Services	*56,230*
Maintenance and Repair	*291,331*
Library	*1,900*
Total Direct Costs	3,135,611
Modified Total Direct Costs (if applicable)	597,931
Indirect Costs or Administrative Fees	316,904
Total Data Management	**$3,452,515**

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 participate in large facility workshops and data management meetings, work at port calls, and sail on FY14 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, server, video distribution, and network equipment to replace aged 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 FY14 have already been paid, so these subcontracts are not subject to indirect cost during FY14. 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 NSF; and warehousing and distribution of IODP, Ocean Drilling Program (ODP), and Deep Sea Drilling Project (DSDP) publications.

IODP publications for FY14 will include Quarterly and Annual Reports for the USIO; a *Scientific Prospectus*, *Preliminary Report*, and *Proceedings of the Integrated Ocean Drilling Program* volume for each USIO expedition and a *Preliminary Repor*t and *Proceedings of the Integrated Ocean Drilling Program* volume for CDEX and ESO expeditions that have concluded by the end of FY13. CDEX and ESO reports and publications are produced according to standard schedules that commence upon receipt of content by the USIO.

10.2. DELIVERABLES IN FY14

- IODP Publications: Advise NSF on scientific publication efforts. The following publications will be published or in production:
  - ~8 scientific reports (*Scientific Prospectuses* and *Preliminary Reports*);
  - Expedition reports from 9 IODP expeditions (7 USIO expeditions, 1 CDEX expedition, and 1 ESO expedition); and
  - Postexpedition data reports and synthesis papers from 26 IODP expeditions (18 USIO expeditions, 6 CDEX expeditions, and 2 ESO expeditions).
- IODP Reports: The following reports will be edited and produced:
  - 4 IODP-USIO quarterly reports;
  - IODP-USIO Annual Program Plans, including original versions and all revisions required by NSF; and
  - 1 IODP-USIO FY14 Annual Report (or other year-end document).
- Report of Program-related citation statistics.
- Management:
  - Manage postexpedition publication citations,
  - Manage peer review process for IODP *Proceedings* volumes (~50 data reports or synthesis papers),
  - Provide distribution and warehousing for IODP *Proceedings* volumes (and ODP and DSDP publications and reports), and
  - Provide centralized record keeping of IODP postexpedition research submissions.
- Publications Support:
  - Provide a Publications Specialist for publications support and report coordination during 4 USIO expeditions and 1 ESO onshore Science Party meeting.
  - Provide editorial, graphics, and production support during 5 USIO editorial postexpedition meetings (4 USIO meetings and 1 ESO meeting).

- Legacy and Technical Documentation: Routinely archive electronic copies of all documents, reports, technical documentation, and scientific publications produced by the USIO on behalf of IODP.

10.3. BUDGET

Publications	
Element/Expense Category	**Total**
Salaries and Fringes	1,283,382
Travel	43,200
Supplies	14,820
Shipping	1,100
Communication	6,000
Contractual Services	0
Equipment	0
Other Direct Costs	41,225
Relocation	*10,000*
Training	*13,250*
Services	*4,615*
Equipment Rental	*325*
Recruiting	*5,000*
Maintenance and Repair	*7,035*
Library	*1,000*
Total Direct Costs	1,389,727
Modified Total Direct Costs (if applicable)	0
Indirect Costs or Administrative Fees	0
Total Publications	**$1,389,727**

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) and for USIO staff providing publications support at an ESO onshore Science Party meeting.

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

Travel costs for USIO staff who will sail on FY14 expeditions, attend professional conferences, and provide publications support at one ESO onshore Science Party meeting; for nonsailing USIO staff to work at port calls; and to bring off-site USIO staff to participate in on-site meetings.

Supplies—Office and operational supplies.

General office supplies.

Shipping—Postage, express mail, and freight.

Postage and shipping for regular correspondence and IODP scientific reports.

Communication—Telephone and fax charges.

Standard telephone line, long distance, and fax charges.

Contractual Services—None budgeted.

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 online software training.

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

Meal expenses related to hosting meetings.

Services—Expert assistance.

American Geosciences Institute (AGI) Ocean Drilling Citation Database fee for inclusion of new citations, CrossRef annual membership and administrative costs, digital object identifier (DOI) registration charges, annual physical examinations for seagoing personnel, and printing of annual report.

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

Water cooler rental.

Recruiting—Employee recruitment.

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

Maintenance and Repair—Maintenance agreements and equipment repairs.

AGI annual maintenance contract for web database, copier repairs, and copier and forklift maintenance agreements.

Library—Books, journals, and other resources.

Books, professional publications, and reference materials.

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 joint funding by the USIO and the United States Science Support Program (USSSP) 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 FY14

- 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 FY14 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 FY14 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	**Total**
Salaries and Fringes	0
Travel	45,000
Supplies	4,000
Shipping	5,000
Communication	2,000
Contractual Services	52,450
Equipment	2,000
Other Direct Costs	25,000
Services	*25,000*
Total Direct Costs	135,450
Modified Total Direct Costs (if applicable)	0
Indirect Costs or Administrative Fees	50,117
Total Education	**$185,567**

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 37% 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, TAMRF, and JAMSTEC subcontracts = $111,000).

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 as well as encouraging awareness of and interest in the scientific results of the Program. The USIO facilitates outreach activities through joint funding by the USIO and the USSSP.

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 FY14

- 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 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	**Total**
Salaries and Fringes	0
Travel	22,000
Supplies	1,000
Shipping	3,000
Communication	1,000
Contractual Services	20,000
Equipment	0
Other Direct Costs	0
Total Direct Costs	47,000
Modified Total Direct Costs (if applicable)	0
Indirect Costs or Administrative Fees	17,390
Total Outreach	**$64,390**

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 37% 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, TAMRF, and JAMSTEC subcontracts = $111,000).

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 Texas A&M University Risk Management Office, 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://rules-saps.tamu.edu/TAMURulesAndSAPs.aspx, 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 http://iodp.tamu.edu/internal/infotech.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 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.

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 FY13. Premium negotiations include documentation and explanation of specific exposures, estimated payroll costs, estimated operational time, confirmation of valuation, and operational history.

The FY14 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	$777,697
Control of Well	$25,000,000	$50,000	$122,398
Seepage & Pollution Liability[2]	$1,000,000	$50,000	$0
Cargo	$5,000,000	$25,000	$53,215
Third Party Property/Equipment	$10,000,000	$25,000	$33,659
Charterer's Legal Liability	$1,000,000	$10,000	$13,944
Contractor's Pollution Liability—Gradual	$10,000,000	$1,000,000	$31,654
Umbrella	$200,000,000	Per underlying limits	$309,192
Worker's Compensation & Maritime Employer's Liability	$1,000,000	None	$81,604
Comprehensive General & Automobile Liability	$1,000,000	None	$27,234
TOTAL			**$1,450,597**

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

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

APPENDIX III: IODP-USIO FY15–FY17 CLOSEOUT PLAN OVERVIEW

A high-level outline of potential and necessary contract closeout activities and estimated costs will be submitted on 1 August 2013.