



## **INTEGRATED OCEAN DRILLING PROGRAM United States Implementing Organization**

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

### **FY09 ANNUAL PROGRAM PLAN to IODP-MI**

**For Time Period  
1 October 2008 to 30 September 2009**

**Amount Proposed FY09: \$54,673,778 (SOC and POC)  
Amount Proposed FY09: \$11,488,755 (SOC)  
Amount Proposed FY09: \$43,185,023 (POC)**



**Integrated Ocean Drilling Program  
United States Implementing Organization**

Respectfully Submitted to:  
IODP Management International, Inc.

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# 1. INTRODUCTION

## 1.1. ANNUAL PROGRAM PLAN OVERVIEW

The FY09 Annual Program Plan defines the U.S. Implementing Organization (USIO) scope of work for Integrated Ocean Drilling Program (IODP) activities and deliverables for the FY09 fiscal year. It is based on (1) the current mission forecast provided on 29 April 2008 for the USIO by the U.S. National Science Foundation (NSF) and the IODP central management office (IODP Management International, Inc. [IODP-MI]) and (2) the USIO operations schedule that was approved by the Operations Task Force (OTF) and Science Planning Committee (SPC). It 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), formerly 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.<sup>1</sup> In FY05, Ocean Leadership established a contract with IODP-MI for the science operating costs (SOC) of the USIO, which complemented the contract with NSF for platform operating costs (POC). Under guidance from NSF and IODP-MI, the USIO FY09 Annual Program Plan was developed in consultation with the USIO subcontractors for inclusion in the IODP FY09 Annual Program Plan.

IODP-MI, with input from IODP funding agencies, has provided guidance and instruction to the USIO on the preparation of the USIO contribution to the IODP FY09 Annual Program Plan. The USIO FY09 Annual Program Plan includes a discussion of the goals of the USIO, all responsibilities and deliverables, operational schedule, definitions of projects, and the USIO organizational structure for all science operations and platform operations activities. Also included are the required budgets that incorporate funding allocations from IODP-MI for science operations and funding allocations from NSF for platform operations.

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 an SODV called the RV *JOIDES Resolution*, which recently completed its conversion for use as the riserless drilling vessel for USIO operations. In support of the drilling vessel and with the approval of NSF and IODP-MI, the USIO will provide an array of science, operations, logging, engineering, information technology, technical, and publication services; laboratory facilities; core repositories; and administrative services necessary to support IODP. In addition, LDEO has contracted with Schlumberger for the provision of downhole logging equipment and engineering support.

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<sup>1</sup> In this document, references to TAMU include TAMRF.

## 1.2. USIO FY09 ACTIVITIES

### 1.2.1. Summary of FY09 USIO Scope

The scope of activities associated with initial planning and preparation of IODP expeditions is similar to previous Ocean Drilling Program (ODP) and early IODP activities in terms of deliverables, challenges, and risks. In addition, the USIO will also carry out the postexpedition activities related to the early IODP expeditions and ongoing operational tasks (e.g., completing reports and legacy 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 BUDGET SUMMARY

### 1.3.1. Budget Structure: SOC and POC

The USIO budget request of \$54,673,778 is partitioned into two programmatic categories: (1) USIO FY09 science operating costs, which are defined as SOC in a budget that is submitted to IODP-MI for approval, and (2) USIO FY09 platform operating costs, which are defined as POC in a budget that will be submitted to NSF for approval. SOC is partitioned into “operational” costs (SOC Operations), which are to be funded directly from NSF through the U.S. Systems Integration Contract costs (SIC) and other costs (SOC Nonoperations), which are to be funded through the IODP-MI contract. SOC Operations costs are defined as “that which funds SODV SOC operations at sea and all costs in support of these operations such as planning, logistics, engineering science support, etc.”

The budget submitted to NSF for approval also includes additional funding in support of maintaining U.S. capability for continued scientific ocean drilling in IODP (U.S. Systems Integration Contract costs).

Preparation of the USIO FY09 Annual Program Plan is based on the operations schedule defined by the SPC for U.S. riserless drilling vessel operations during FY09 and beyond.

The cost breakdown for FY09 is a request to IODP-MI for \$3,804,249 in SOC Nonoperations expenses (submitted in this Annual Program Plan to IODP-MI) and a request to NSF for \$7,684,506 in SOC Operations expenses and \$43,185,023 in POC expenses for USIO operations.

### 1.3.2. FY09 USIO Budget Assumptions

The requested SOC and POC budgets are based on an operations schedule that began on 25 January 2009 in Singapore. The USIO has provided our best-effort estimate of predicted FY09 costs in this plan. If additional funds are identified, the USIO will use them to purchase and install large-diameter drill pipe infrastructure aboard the *JOIDES Resolution*. Other drilling, science, or data management supplies or high-priority capital replacement items may be purchased in support of USIO deliverables using cost avoidances gained during the fiscal year.

The first expedition commenced from Honolulu, Hawaii, in March 2009. In addition, assumptions about the operations schedule are outlined in the “Expedition Operations” chapter.

## 2. BUDGET SUMMARY TABLES

### 2.1. FY09 USIO SOC/POC WBE BUDGET SUMMARY

Element	SOC-OPS	SOC-NonOPS	POC	Total
Management and Administration	455,393	598,757	3,404,371	4,458,521
Technical, Engineering, and Science Support	5,924,385	364,541	38,897,190	45,186,116
Engineering Development	0	0	0	0
Core Curation	106,738	361,213	0	467,951
Data Management	1,144,224	1,198,404	883,462	3,226,090
Publications	53,766	1,227,095	0	1,280,861
Education	0	0	0	0
Outreach	0	54,239	0	54,239
<b>Total</b>	<b>\$7,684,506</b>	<b>\$3,804,249</b>	<b>\$43,185,023</b>	<b>\$54,673,778</b>

Notes: Ocean Leadership Indirect Costs are included in the Management and Administration (M&A) 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.

Element	SOC-OPS	SOC-NonOPS	POC	Total
<b>Total Direct Costs</b>	<b>7,057,217</b>	<b>3,308,604</b>	<b>42,590,733</b>	<b>52,956,554</b>
<b>Indirect Costs and Administrative Fees</b>	<b>627,289</b>	<b>495,645</b>	<b>594,290</b>	<b>1,717,224</b>
<b>Total</b>	<b>\$7,684,506</b>	<b>\$3,804,249</b>	<b>\$43,185,023</b>	<b>\$54,673,778</b>

## 2.2. FY09 USIO SOC/POC WBE BUDGET DETAIL

Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
<b>Management and Administration</b>				
Salaries and Fringes	290,661	242,967	2,353,668	2,887,296
Travel	25,072	30,293	164,074	219,439
Supplies	6,850	3,950	37,200	48,000
Shipping	887	457	5,106	6,450
Communication	5,504	4,609	31,081	41,194
Contractual Services	3,400	1,000	58,000	62,400
Equipment	4,600	1,600	10,800	17,000
Other Direct Costs	15,825	9,545	177,030	202,400
<b>Total Direct Costs</b>	<b>352,799</b>	<b>294,421</b>	<b>2,836,959</b>	<b>3,484,179</b>
Modified Total Direct Costs (if applicable)	95,335	76,952	351,138	523,425
<b>Indirect Costs or Administrative Fees</b>	<b>102,594</b>	<b>304,336</b>	<b>567,412</b>	<b>974,342</b>
<b>Total Management and Administration</b>	<b>\$455,393</b>	<b>\$598,757</b>	<b>\$3,404,371</b>	<b>\$4,458,521</b>
<b>Technical, Engineering, and Science Support</b>				
Salaries and Fringes	2,319,093	203,498	2,873,000	5,395,591
Travel	417,438	44,537	459,382	921,357
Supplies	179,200	0	1,361,400	1,540,600
Shipping	238,950	7,750	351,900	598,600
Communication	13,808	3,608	12,100	29,516
Contractual Services	1,944,780	0	1,660,069	3,604,849
Equipment	232,250	0	600,750	833,000
Other Direct Costs	240,600	0	31,809,704	32,050,304
Day Rate	0	0	27,647,743	27,647,743
Fuel and Lubricants	0	0	1,241,095	1,241,095
Per Diem	0	0	492,900	492,900
Port Calls	0	0	602,280	602,280
Insurance	0	0	912,917	912,917
Travel—ODL	0	0	480,000	480,000
Other	240,600	0	432,769	673,369
<b>Total Direct Costs</b>	<b>5,586,119</b>	<b>259,393</b>	<b>39,128,305</b>	<b>44,973,817</b>
Modified Total Direct Costs (if applicable)	638,238	198,393	14,500	851,131
<b>Indirect Costs or Administrative Fees</b>	<b>338,266</b>	<b>105,148</b>	<b>7,685</b>	<b>451,099</b>
<b>Total Tech., Engineering, and Science Support</b>	<b>\$5,924,385</b>	<b>\$364,541</b>	<b>\$39,135,990</b>	<b>\$45,424,916</b>
<b>Engineering Development</b>				
Salaries and Fringes	0	0	0	0
Travel	0	0	0	0
Supplies	0	0	0	0
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
<b>Total Engineering Development Direct Costs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Modified Total Direct Costs (if applicable)	0	0	0	0
<b>Indirect Costs or Administrative Fees</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Engineering Development</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

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

### FY09 USIO SOC/POC WBE BUDGET DETAIL (CONTINUED)

Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
<b>Core Curation</b>				
Salaries and Fringes	83,000	290,000	0	373,000
Travel	12,105	36,316	0	48,421
Supplies	3,000	9,000	0	12,000
Shipping	4,500	13,500	0	18,000
Communication	829	2,486	0	3,315
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	3,304	9,911	0	13,215
<b>Total Core Curation Direct Costs</b>	<b>106,738</b>	<b>361,213</b>	<b>0</b>	<b>467,951</b>
Modified Total Direct Costs (if applicable)	0	0	0	0
<b>Indirect Costs or Administrative Fees</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Core Curation</b>	<b>\$106,738</b>	<b>\$361,213</b>	<b>\$0</b>	<b>\$467,951</b>
<b>Data Management</b>				
Salaries and Fringes	688,645	754,259	486,482	1,929,386
Travel	32,323	44,818	36,964	114,105
Supplies	20,116	16,046	12,562	48,724
Shipping	1,141	728	279	2,148
Communication	6,223	8,098	6,960	21,281
Contractual Services	0	0	0	0
Equipment	37,658	34,277	55,031	126,966
Other Direct Costs	171,689	267,779	265,991	705,459
<b>Total Direct Costs</b>	<b>957,795</b>	<b>1,126,005</b>	<b>864,269</b>	<b>2,948,069</b>
Modified Total Direct Costs (if applicable)	351,753	136,601	36,214	524,568
<b>Indirect Costs or Administrative Fees</b>	<b>186,429</b>	<b>72,399</b>	<b>19,193</b>	<b>278,021</b>
<b>Total Data Management</b>	<b>\$1,144,224</b>	<b>\$1,198,404</b>	<b>\$883,462</b>	<b>\$3,226,090</b>
<b>Publications</b>				
Salaries and Fringes	14,000	1,121,000	0	1,135,000
Travel	39,766	26,041	0	65,807
Supplies	0	29,820	0	29,820
Shipping	0	6,886	0	6,886
Communication	0	8,000	0	8,000
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	35,348	0	35,348
<b>Total Direct Costs</b>	<b>53,766</b>	<b>1,227,095</b>	<b>0</b>	<b>1,280,861</b>
Modified Total Direct Costs (if applicable)	0	0	0	0
<b>Indirect Costs or Administrative Fees</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Publications</b>	<b>\$53,766</b>	<b>\$1,227,095</b>	<b>\$0</b>	<b>\$1,280,861</b>

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### FY09 USIO SOC/POC WBE BUDGET DETAIL (CONTINUED)

Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
<b>Education</b>				
Salaries and Fringes	0	0	0	0
Travel	0	0	0	0
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
<b>Total Direct Costs</b>	0	0	0	0
Modified Total Direct Costs (if applicable)	0	0	0	0
<b>Indirect Costs or Administrative Fees</b>	0	0	0	0
<b>Total Education</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Outreach</b>				
Salaries and Fringes	0	20,227	0	20,227
Travel	0	6,000	0	6,000
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	14,250	0	14,250
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
<b>Total Direct Costs</b>	0	40,477	0	40,477
Modified Total Direct Costs (if applicable)	0	0	0	0
<b>Indirect Costs or Administrative Fees</b>	0	13,762	0	13,762
<b>Total Outreach</b>	<b>\$0</b>	<b>\$54,239</b>	<b>\$0</b>	<b>\$54,239</b>
<b>Grand Total Direct Costs</b>	<b>7,057,217</b>	<b>3,308,604</b>	<b>42,829,533</b>	<b>53,195,354</b>
<b>Grand Total Indirect Costs/Administrative Fee</b>	<b>627,289</b>	<b>495,645</b>	<b>594,290</b>	<b>1,717,224</b>
<b>TOTAL FY09 SOC/POC BUDGET</b>	<b>\$7,684,506</b>	<b>\$3,804,249</b>	<b>\$43,423,823</b>	<b>\$54,912,578</b>

## 3. ORGANIZATIONAL STRUCTURE

### 3.1. INTRODUCTION

Ocean Leadership has subcontracts with LDEO and with TAMU (through TAMRF) that formally establish the USIO for IODP. The USIO carries out all of its IODP deliverables through contracts with IODP-MI for SOC Nonoperations costs and with NSF for POC and SOC Operations costs (as defined in Section 1.3.1. Budget Structure: SOC and POC).

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 called RV *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 work breakdown element (WBE) accounting structure used by IODP and allows us 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. 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 SOC Operations, SOC Nonoperations, POC, and other costs. Because staffing revisions were initiated in the middle of the fiscal year, the FTE allocation tables reflect actual FTEs as of 1 April 2009 plus projected FTEs for the remainder of the fiscal year. Staffing levels may change annually due to unanticipated changes in the operations schedule and/or scope of work. NonUSIO SOC-NonOPS FTEs shown in the second table 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 TE&SS, Data Management, and Publications chapters and to IODP-MI as noted in the Publications chapter.

FTE by Work Breakdown Elements									
USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total
Ocean Leadership	3.01	0.00	0.00	0.00	0.00	0.00	0.00	0.11	3.12
LDEO	4.75	9.71	0.00	0.00	4.71	0.00	0.00	0.00	19.17
TAMU	5.83	57.91	0.00	10.19	20.00	16.55	0.00	0.00	110.49
<b>Totals</b>	<b>13.59</b>	<b>67.62</b>	<b>0.00</b>	<b>10.19</b>	<b>24.71</b>	<b>16.55</b>	<b>0.00</b>	<b>0.11</b>	<b>132.78</b>

FTE by Expense Category						
USIO Office	USIO SOC-NonOPS	NonUSIO SOC-NonOPS*	SOC-OPS	POC	Other	Total
Ocean Leadership	0.71	0.00	0.60	1.81	2.98	6.10
LDEO	3.55	0.06	11.96	3.60	0.33	19.50
TAMU	23.51	8.39	33.03	45.56	0.59	111.08
<b>Totals</b>	<b>27.77</b>	<b>8.45</b>	<b>45.59</b>	<b>50.97</b>	<b>3.90</b>	<b>136.68</b>

Notes: FTE = full-time equivalent, M&A = Maintenance and Administration, TE&SS = 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., SIC, SODV). TAMRF administrative support staff are not included in the table.

### 3.3. NEW USIO IODP PHASE 2 BUSINESS MODEL

The USIO currently faces a business environment that includes shortfalls in anticipated funding exceeding 30%, and an NSF directive for the USIO to

- cut costs and adjust staffing levels to match reduced science expedition schedules,
- increase efficiency to maximize science delivery within a reduced portfolio of science services, and
- build a foundation for industry-academic partnerships for use of the drill ship when not funded by NSF.

In response to these challenges, USIO-TAMU developed a more efficient and cost-effective Phase 2 business model to meet organizational objectives outlined by NSF and support delivery of the four expeditions planned for FY09. The new TAMU staffing plan eliminated 17 positions (11 vacant, 6 filled) and created 7 new positions, 4 of which are positions currently held at TAMRF that are being transferred to TAMU. The table in Section 3.4 shows the full TAMU staffing plan as partitioned between the WBE(s) to which positions are assigned and the number of vacant positions as of 1 April 2009.

### 3.4. REVISED USIO-TAMU STAFFING PLAN

Position by Work Breakdown Elements									
	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total
Proposed Positions	7.00	60.00	0.00	4.00	18.00	21.00	0.00	0.00	110.00
Vacant Positions	4.00	8.00	0.00	1.00	0.00	5.00	0.00	0.00	18.00

Note: Student workers and TAMRF administrative support staff are not included in the table.

## 4. EXPEDITION OPERATIONS

### 4.1. INTRODUCTION

This Annual Program Plan is based on the operations schedule published 15 October 2008. Following acceptance of the vessel and completion of deployment and mobilization, the ship departed Singapore for sea trials at Ocean Drilling Program (ODP) Site 807 and then transited to Honolulu, Hawaii. Expedition operations commenced on 4 March 2009 with the Pacific Equatorial Age Transect (PEAT) Expedition.

25 January–4 March 2009	Mobilization/Sea Trials/Transit
4 March–5 May 2009	PEAT Expedition
5 May–5 July 2009	PEAT Expedition/ Juan de Fuca Remedial Cementing
5 July–4 September 2009	Bering Sea Expedition
4 September–4 November 2009	Shatsky Rise Expedition
4 November 2009–4 January 2010	Canterbury Basin Expedition
4 January–9 March 2010	Wilkes Land Expedition

### 4.2. OPERATIONS

#### 4.2.1. Pacific Equatorial Age Transect Expedition

##### *Proposed Operations*

This PEAT Expedition is the first of two expeditions that will address the goals of Proposal 626, the Pacific Equatorial Age Transect. The proposed strategy is to drill a transect using the gradual northward motion of the Pacific plate to target sediments of appropriate Paleogene and Miocene age as they exit the productivity belt, largely avoiding deeply buried diagenetically altered sediment. The PEAT program consists of seven high-priority sites, five of which will be occupied during this expedition. Primary tools will include Advanced Piston Corer (APC) and extended core barrel (XCB) coring to target each interval with multiple holes to ensure stratigraphic continuity and overlap. Standard downhole wireline tools in the paleoceanographic configuration and the Versatile Seismic Imager (VSI) in a check shot survey will be used to obtain logs for correlation to core and seismic measurements.

##### *Experiments*

No experiments are planned for this expedition.

##### *Logistics*

Operations for this PEAT Expedition are budgeted based on an estimated 61 days (5 in port, 12 in transit, and 44 in operations).

##### *Environment and Safety*

There is a potential for thin chert layers in the basal sections of sites focused on Eocene targets, which could affect recovery during some PEAT operations.

#### **4.2.2. Pacific Equatorial Age Transect Expedition/Juan de Fuca Remedial Cementing**

##### ***Proposed Operations***

This is the second PEAT Expedition that will address the goals of Proposal 626, the Pacific Equatorial Age Transect. The proposed strategy is to drill a transect using the gradual northward motion of the Pacific plate to target sediments of appropriate Paleogene and Miocene age as they exit the productivity belt, largely avoiding deeply buried diagenetically altered sediment. Three of the PEAT program's seven high-priority sites will be occupied during this expedition. Primary tools will include APC and XCB coring to target each interval with multiple holes to ensure stratigraphic continuity and overlap. Standard downhole wireline tools in the paleoceanographic configuration and the VSI in a check shot survey will be used to obtain logs for correlation to core and seismic measurements. Following PEAT operations, we will return to Holes U1301A and U1301B to cement the observatories that were not sealed when installed during Expedition 301 (Juan de Fuca Hydrogeology).

##### ***Experiments***

No experiments are planned for this expedition.

##### ***Environment and Safety***

There is a potential for thin chert layers in the basal sections of sites focused on Eocene targets, which could affect recovery during some PEAT operations. Effective cementing of the Site U1301 observatories requires good sea states.

##### ***Logistics***

Operations for the PEAT Expedition/Juan de Fuca Remedial Cementing are budgeted based on an estimated 61 days (5 in port, 20 in transit, and 36 in operations).

#### **4.2.3. Bering Sea Expedition**

##### ***Proposed Operations***

The primary goal of the Bering Sea Expedition is to recover a continuous, high-resolution sediment record for reconstructing the detailed climate history of the North Pacific from the earliest Pliocene to the present in millennial to Milankovitch time scales. Seven primary sites will be triple cored with the APC to refusal (~200 m) to recovery the complete stratigraphic section. Four of the sites will be cored to depths of ~500-700 mbsf with the XCB to obtain the older record. Use of the rotary core barrel (RCB) may be required to reach depth objectives. Each site will be logged with the triple combination (triple combo) and Formation MicroScanner (FMS)-sonic tool strings. Selected sites may be logged with the VSI for a vertical seismic profile (VSP) survey.

##### ***Experiments***

No experiments are planned for this expedition.

***Environment and Safety***

Operations will be conducted in the Bering Sea at the edge of the acceptable weather window, which could impact operations.

***Logistics***

Operations for the Bering Sea expedition require an estimated 61 days (5 in port, 17 in transit, and 39 in operations).

**4.2.4. Shatsky Rise Expedition*****Proposed Operations***

The primary objective of the Shatsky Rise Expedition is to core igneous rocks from the volcanic massifs of Shatsky Rise to determine the age, sources, and evolution of this oceanic plateau and to test the hypotheses of its origin. Five primary sites will be drilled with the RCB. Four sites will be drilled 100 m into basement and one site will be drilled 300 m into basement. Each site will be logged with triple combo and FMS-sonic tool strings and with the VSI for a VSP survey.

***Experiments***

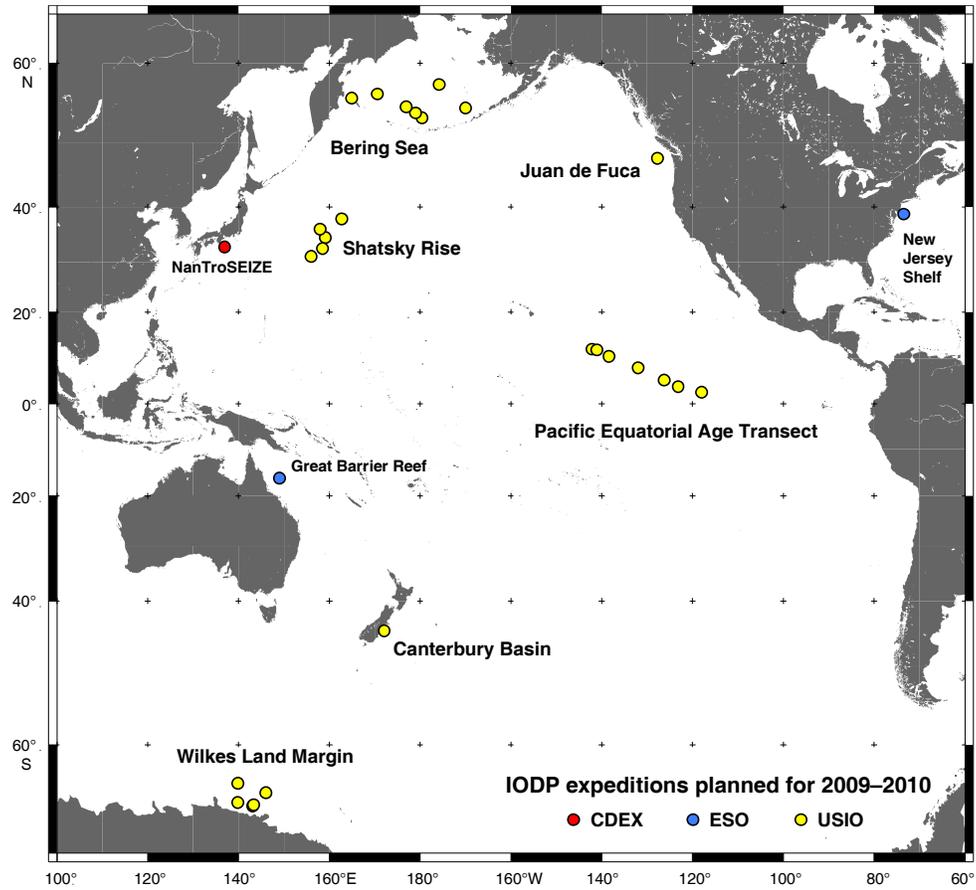
No experiments are planned for this expedition.

***Environment and Safety***

Operations will be conducted at Shatsky Rise during the Pacific typhoon season, which could impact operations, although the historical average for this area is 0–1 storms per year during this operational window.

***Logistics***

Operations for the Shatsky Rise expedition require an estimated 61 days (5 in port, 18 in transit, and 38 in operations). For FY09, these include the 5 days in port, 5 days of transit, and 16 days of operations.



### 4.3. EXPEDITION OPERATIONS BUDGET\*

Expense Category	Mobilization/ Transit/Sea Trials	Pacific Equatorial Age Transect (PEAT)	PEAT/ Juan de Fuca Cementing	Bering Sea	Shatsky Rise**	Total
	39 days	61 days	61 days	61 days	27 days	249 days
<b>Ship Operations</b>						
Day Rate	2,989,389	4,678,039	4,688,558	4,688,558	1,694,946	18,739,490
Communications†	0	0	0	0	0	0
Fuel and Lubricants‡	0	0	0	207,295	795,000	1,002,295
Per Diem	70,200	109,800	109,800	109,800	48,600	448,200
Port Calls‡	0	0	0	50,620	220,700	271,320
Insurance	0	265,180	265,180	265,180	117,377	912,917
Travel—ODL‡	0	0	160,000	160,000	160,000	480,000
Other Exp.—ODL	4,484	5,658	6,833	6,513	6,513	30,000
<b>Contractual Services</b>						
Schlumberger	342,186	535,214	535,214	535,214	228,124	2,175,952
Environmental Assessment	0	0	0	40,720	45,800	86,520
<b>Total</b>	<b>\$3,406,259</b>	<b>\$5,593,891</b>	<b>\$5,765,585</b>	<b>\$6,063,900</b>	<b>\$3,317,060</b>	<b>\$24,146,694</b>

\*This table includes the major expedition costs but does not include all costs itemized in the budget narrative below that support expedition operations.

\*\*Only the FY09 portion of the Shatsky Rise Expedition is shown in this budget.

†FY09 VSAT services were prepaid using funds carried forward from a purchase order to the service provider in FY07.

‡FY08 funds were committed to the ODL subcontract for the first three refuelings and a portion of the fourth refueling in FY09; the Operations portion of per diem during deployment (mobilization, transit, and sea trials); the first three port calls and a portion of the fourth port call in FY09; and ODL travel for deployment, port call reconnaissance trips, and the first PEAT Expedition (\$160,000 x 2).

The expedition costs included in this budget cover the activities defined as SOC and POC for the deployment period and FY09 expeditions.

**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 the first transit, and/or sail on FY09 expeditions, and for TAMU staff who sail on the first FY10 expedition.

**Supplies**—Office and operational supplies.

Safety equipment and laboratory, logistic, and shipping supplies for the FY09 expeditions.

**Shipping**—Postage, express mail, and freight.

Costs for shipments to and from FY09 expeditions and to the first FY10 expedition.

**Communication**—Satellite, telephone, and fax charges.

Cost for very small aperture terminal (VSAT) communication and Marisat communication to and from the *JOIDES Resolution*. Sufficient funds were carried forward on a purchase order to the VSAT service provider in FY07 to offset all anticipated FY09 ship communications expenditures.

**Contractual Services**—Consultant and contract services.

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

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

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

**Other Direct Costs**—Costs not covered in other categories.**Day Rate**—Vessel staffing for the subcontractor's sailing crew and drilling personnel.

Cost of staffing the ship, including the sailing crew and drilling personnel, but not including the cost of the USIO personnel or scientists aboard the ship. The day rate varies according to the mode of the ship, which is operating (drilling or cruising) or standing by (in port). Although it is a fixed rate per day, the day rate is adjusted for changes in the Consumer Price Index-Urban (CPI-U) and Employment Cost Index (ECI). The amount is based on 249 days, which includes deployment (mobilization, transit, and sea trials)—25 January–4 March 2009. The weighted average operating and standby day rates for the period are \$76,939 and \$74,730, respectively. The budget allows for one CPI-U base adjustment of 2.46% effective 1

October 2008 and two ECI base adjustments averaging 2.64% effective 1 October 2008 and 1 April 2009.

*Fuel and Lubricants*—Fuel for the riserless vessel.

FY09 ship operations fuel purchases are estimated at a total of 7,807 metric tons: 2,700 metric tons in Singapore at \$516 per metric ton; 2,100 metric tons in Honolulu, Hawaii (2 refuelings) at an average cost of \$509 per metric ton; 1,500 metric tons in Victoria, British Columbia at \$625 per metric ton; and 1,500 metric tons in Yokohama, Japan at \$530 per metric ton. Prices per metric ton are based on the published price as of 6 March 2009 plus a 15% inflation factor. Due to a sharp decline in fuel prices since September 2008, funds committed to the ODL subcontract in FY08 for the Singapore refueling are sufficient to offset the costs of the Singapore and two Honolulu refuelings and a portion of the Victoria refueling. (It was estimated that the fuel remaining when the vessel bunkered its first operations refueling in Singapore is sufficient for any SODV-related activities occurring during the transit to Honolulu.)

*Per Diem*—Shipboard catering.

Costs associated with meals and berthing on the vessel and cleaning of the laboratory stack. Estimate is based on a shipboard party of 60 participants at \$30/day/person for the period 25 January–30 September 2009. Also included is \$1,500 for meals served during port calls to nonseagoing personnel. This category does not include per diem for the ship subcontractor's sailing crew and drilling personnel, as they are accounted for in the day rate unless charged as a reimbursable (see "Day Rate" above).

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

Locations have a definite effect on the port call cost, which covers agents' expenses and freight associated with resupplying the ship. During the deployment and first expedition port calls, materials and equipment are off-loaded and supplies and equipment are loaded for the upcoming period's activities. ODL is reimbursed for port agent charges and shipment of food and related supplies. Shipment of cores, drilling equipment, and laboratory supplies is arranged by TAMU and paid for by TAMRF. Similarly, TAMRF purchases all drilling equipment and laboratory supplies necessary for meeting the objectives of the expedition. Port calls by expedition are based on the estimated costs for the port from which the expedition begins and any interim port calls occurring prior to its conclusion, as identified in the current ship schedule.

Port calls are scheduled for Singapore (mobilization); Guam (1 day); Honolulu, Hawaii (2 port calls at 5 days each); San Diego, California (1 day); Victoria, British Columbia (5 days); and Yokohama, Japan (5 days); in support of a total of four expeditions. (Funds for the Singapore, Guam, and first Honolulu port call were committed to the ODL subcontract in FY08.)

*Insurance*—Annual insurance premiums for subcontractor and TAMRF.

Subcontractor's premium costs for All Risks Marine Hull and Machinery and Removal of Wreck insurance and TAMRF premium costs for General and Automobile Liability, Workers Compensation, Cargo, Excess Liability, Third Party Property, Control of Well, Charters Legal Liability, and Contractor's Pollution coverage for the vessel. Premium amounts are based on 249 days of coverage. The premium period is 25 January–1 October 2009. (It is assumed that the premium costs for the period 1 October–24 January 2009 will be charged to SODV.)

*Travel—ODL*—Subcontractor transportation.

Airfare for ship subcontractor's crews to/from three scheduled port calls—Honolulu, Hawaii; Victoria, British Columbia; and Yokohama, Japan. 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. (Funds for crew changes at the port calls in Singapore and Guam and the first port call in Honolulu, Hawaii, and travel costs for a port call reconnaissance trip by the subcontractor's logistics representative were committed to the ODL subcontract in FY08.)

*Relocation*—Relocation costs for new TAMU seagoing employees.

*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 medical evacuation and other miscellaneous charges payable to the ship's subcontractor, drill pipe maintenance, wireline severing charges, shipboard maintenance service calls, transfer fees, weather reports, annual physical examinations for seagoing personnel, copier services, external copying and printing services, and a cementing engineer to provide a plan for the Juan de Fuca remedial cementing program.

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

Costs for possible medical evacuations (\$25,000) and miscellaneous reimbursables (\$5,000) payable to the ship subcontractor.

*Recruiting*—Employee recruitment.

Local advertisements, advertisements in science and trade journals, and other costs related to filling seagoing positions for Phase 2 operations.

*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 FY09 have already been paid, so these subcontracts are not subject to indirect cost during FY09. There is one new subcontract for environmental assessment; the first \$25,000 of this subcontract will be subject to indirect costs in FY09. 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 FY09

Annual Program Plan: Develop and assure implementation.

Quarterly and Annual Reports: Develop quarterly and annual reports, including financial reports.

Report and Liaise: Report and liaise with funding agencies and with IODP-related agencies (e.g., the Science Advisory Structure [SAS]), Program Member Offices, and other national organizations. Participate in SAS panels, IODP-MI task forces, working groups, and so on.

Contract Services: Provide contract services for IODP-related activities.

Legacy Documentation.

### 5.3. BUDGET

Management and Administration				
Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
Salaries and Fringes	290,661	242,967	2,353,668	2,887,296
Travel	25,072	30,293	164,074	219,439
Supplies	6,850	3,950	37,200	48,000
Shipping	887	457	5,106	6,450
Communication	5,504	4,609	31,081	41,194
Contractual Services	3,400	1,000	58,000	62,400
Equipment	4,600	1,600	10,800	17,000
Other Direct Costs	15,825	9,545	177,030	202,400
Relocation	2,250	2,250	40,500	45,000
Training	175	175	3,150	3,500
Insurance	400	400	7,200	8,000
Services	11,290	5,010	95,400	111,700
TAMU Computing Services	1,000	1,000	18,000	20,000
Equipment Rental	85	85	1,530	1,700
Furniture	25	25	450	500
Recruiting	100	100	1,800	2,000
Maintenance and Repair	475	475	8,550	9,500
Library	25	25	450	500
<b>Total Direct Costs</b>	<b>352,799</b>	<b>294,421</b>	<b>2,836,959</b>	<b>3,484,179</b>
Modified Total Direct Costs (if applicable)	95,335	76,952	351,138	523,425
Indirect Costs or Administrative Fees	102,594	304,336	567,412	974,342
<b>Total Management and Administration</b>	<b>\$455,393</b>	<b>\$598,757</b>	<b>\$3,404,371</b>	<b>\$4,458,521</b>

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.

SOC/POC—Salaries and fringes for staff supporting the USIO (see Section 3.1. FTE Allocation Table).

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

SOC/POC—USIO travel to SAS panel meetings, task force meetings, IO meetings, USIO meetings, workshops, and 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.

SOC/POC—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.

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

**Communication**—Telephone and fax charges.

SOC/POC—Standard telephone line charges, long distance charges, and fax charges.

**Contractual Services**—Consultant and contract services.

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

**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.

SOC/POC—Computers, monitors, and printers for new staff and replacement of equipment (Ocean Leadership).

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

**Relocation**—Relocation costs for new employees.

SOC/POC—Relocation costs for new employees (TAMU).

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

SOC/POC—Registration and travel costs for professional training courses and meetings (TAMU).

*Insurance*—Annual insurance premiums.

SOC/POC—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.

SOC/POC—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).

SOC/POC—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.

SOC/POC—Rental of equipment for conferences.

*Furniture*—Office furniture.

SOC/POC—Office furniture and storage cabinets for use in office and at external storage facilities.

*Recruiting*—Employee recruitment.

SOC/POC—Cost of newspaper and internet advertisements of vacant positions.

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

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

*Library*—Books, journals, and other resources.

SOC/POC—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.

SOC/POC—

Ocean Leadership: The approved provisional rate of 34% 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 TAMRF and LDEO subcontracts = \$68,000). The G&A costs for the two subcontracts (LDEO and TAMRF) are split 50-50 between SOC G&A and POC G&A (\$34,000 each = \$17,000 SOC + \$17,000 POC).

LDEO: Indirect costs at 53% are assessed on all LDEO 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 FY09 have already been paid, so these subcontracts are not subject to indirect cost during FY09. There is one new subcontract for environmental assessment; the first \$25,000 of this subcontract will be subject to indirect costs in FY09. MTDCs are the total direct costs minus these exceptions.

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

## 6. TECHNICAL, ENGINEERING, AND SCIENCE SUPPORT

### 6.1. GOALS

The USIO is responsible for providing scientific and operational planning and implementation for the USIO riserless drilling expeditions in response to the IODP science planning structure and interfacing with IODP-MI. The USIO will also provide formation temperature measurement services to the Center for Deep Earth Exploration (CDEX) and collaborate with CDEX on borehole observatory development and deployment. The USIO will also provide technical advice and logistical assistance to the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) and CDEX for Schlumberger and other logging services for their expeditions in FY09.

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 FY09 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 FY09

**Expedition Planning and Implementation:** Provide scientific, technical, and operational planning and execution for each scheduled expedition, including provision of a drilling platform. Conduct long-range operational and science planning for out-year expeditions.

**Reporting:** Provide expedition-related reports and content for expedition publications (e.g., *Scientific Prospectus*, *Preliminary Report*, etc.). Act as a liaison to SAS and other panels and task forces as appropriate.

**Expedition Staffing:** Provide selection and support for scientific staffing and Co-Chief Scientist selection for each scheduled USIO expedition. Provide support for shipboard and shore-based technical personnel and activities.

**Logistics Support:** Provide for expedition and shore-based activities including procurement, shipping, and inventory of equipment and supplies.

**Analytical Systems:** Support and maintain shipboard and shore-based analytical facilities, tools, instruments, and associated quality assurance/quality control (QA/QC) protocols. Ensure effective capture and transfer of expedition data to database systems.

**Logging:** Provide for the delivery of logging services, including wireline fishing and back-off/severing services for each scheduled USIO expedition. Provide technical advice to ESO and CDEX for Schlumberger and other logging operations, and

arrange for Schlumberger and other logging services for ESO and CDEX, where appropriate.

**Environmental Assessment:** Provide for environmental assessment services for marine mammal permitting associated with seismic operations.

**Engineering Support:** Provide engineering support for maintaining and developing shipboard and shore-based drilling, coring, logging, and downhole systems, including third-party developments and long-lead time borehole installation projects, for each scheduled USIO expedition. Provide formation temperature measurement services to CDEX for their FY09 expeditions. Collaborate with CDEX on development of borehole observatories to be deployed from the *JOIDES Resolution* and the *Chikyu* during the next few years.

**Applications Development:** Provide maintenance and support for custom software applications and databases for the capture and shipboard management of operational, sampling, and analytical information.

Legacy Documentation.

### 6.3. BUDGET

Technical, Engineering, and Science Support				
Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
Salaries and Fringes	2,319,093	203,498	2,873,000	5,395,591
Travel	417,438	44,537	459,382	921,357
Supplies	179,200	0	1,361,400	1,540,600
Shipping	238,950	7,750	351,900	598,600
Communication	13,808	3,608	12,100	29,516
Contractual Services	1,944,780	0	1,660,069	3,604,849
Equipment	232,250	0	600,750	833,000
Other Direct Costs	240,600	0	31,570,904	31,811,504
Day Rate	0	0	27,647,743	27,647,743
Fuel and Lubricants	0	0	1,002,295	1,002,295
Per Diem	0	0	492,900	492,900
Port Calls	0	0	602,280	602,280
Insurance	0	0	912,917	912,917
Travel—ODL	0	0	480,000	480,000
Other	240,600	0	432,769	673,369
Relocation	16,000	0	21,000	37,000
Training	63,595	0	103,399	166,994
Business Conferences	2,100	0	6,900	9,000
Insurance	3,200	0	4,800	8,000
Services	31,955	0	162,420	194,375
Equipment Rental	600	0	900	1,500
Other Expense—ODL	0	0	30,000	30,000
Recruiting	24,700	0	27,800	52,500
Maintenance and Repair	96,450	0	73,550	170,000
Library	2,000	0	2,000	4,000
<b>Total Direct Costs</b>	<b>5,586,119</b>	<b>259,393</b>	<b>38,889,505</b>	<b>44,735,017</b>
Modified Total Direct Costs (if applicable)	638,238	198,393	14,500	851,131
<b>Indirect Costs or Administrative Fees</b>	<b>338,266</b>	<b>105,148</b>	<b>7,685</b>	<b>451,099</b>
<b>Total Tech., Engineering, and Science Support</b>	<b>\$5,924,385</b>	<b>\$364,541</b>	<b>\$38,897,190</b>	<b>\$45,186,116</b>

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.

SOC/POC—Salaries and fringes for staff supporting the USIO (see Section 3.1. FTE Allocation Table).

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

SOC/POC—IODP meetings and workshops; pre-expedition and postexpedition meetings, and FY10 planning meetings; meetings with drilling equipment supply vendors; subcontract site visits; and travel costs for USIO staff who will work at port calls/mobilization and/or sail on sea trials and FY09 expeditions, and for TAMU staff who will sail on the first FY10 expedition. Also includes LDEO travel to professional training courses and meetings.

**Supplies**—Office and operational supplies.

SOC—General office supplies; electronic media and other computer supplies with an acquisition cost of less than \$1,000 (for TAMU); printer and copier supplies; laboratory, logistic, and shipping supplies for FY09 expeditions and shipboard and shore-based analytical and engineering laboratory and test facilities. Other drilling or science supplies may be purchased in support of USIO deliverables using cost avoidances gained during the fiscal year.

POC—General office supplies; supplies for engineering laboratory and test facility; and operational, laboratory, logistic, and shipping supplies for FY09 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.

SOC/POC—Postage for regular correspondence and small packages and shipping to and from FY09 expeditions and to the first FY10 expedition.

**Communication**—Satellite, telephone, and fax charges.

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

POC—Standard telephone line, long distance, and fax charges. Cost for VSAT communication and Marisat communication to and from the *JOIDES Resolution*. Sufficient funds were carried forward on a purchase order issued to the VSAT service provider in FY07 to offset all anticipated FY09 ship communications expenditures.

**Contractual Services**—Consultant and contract services.

SOC—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); and the day rate for tool insurance for the deployment of downhole logging tools. Other contracts provide laboratory analytical instrument consultant service. In addition, costs are budgeted for contractual services associated with environmental assessment for marine mammal permitting associated with seismic operations.

POC—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, 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 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.

SOC—Logging operations and laboratory equipment. Tools and equipment in support of logging operations and downhole measurement tool testing at the LDEO Environmental Stress Screening Facility and other facilities. Additional SPOT cameras for upright and stereo microscopes and replacement equipment including a new perfluorocarbon tracer (PFT) analysis gas chromatograph (GC); actuator, motors, and controllers for the Natural Gamma Radiation Multisensor Logger (NGRL) sample handling system; 10 mCi <sup>137</sup>Cs source for the Special Task Multisensor Logger (STMSL); MolSpin spinner magnetometer; autotitrator; and water bath.

POC—Operational equipment replacement (e.g., standard and nonmagnetic wireline coring components, subs, crossovers, and outer core barrel components) and acquisition of parts and spare units for temperature and other downhole measurement tools. Additional SPOT cameras for upright and stereo microscopes and replacement equipment including a new perfluorocarbon tracer (PFT) analysis

gas chromatograph (GC); actuator, motors, and controllers for the Natural Gamma Radiation Multisensor Logger (NGRL) sample handling system; 10 mCi <sup>137</sup>Cs source for the Special Task Multisensor Logger (STMSL); MolSpin spinner magnetometer; autotitrator; and water bath.

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

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

SOC—None budgeted.

POC—Cost of staffing the ship, including the sailing crew and drilling personnel, but not including the cost of the USIO personnel or scientists aboard the ship. The day rate varies according to the mode of the ship, which is operating (drilling or cruising) or standing by (in port). Although it is a fixed rate per day, the day rate is adjusted for changes in the Consumer Price Index-Urban (CPI-U) and Employment Cost Index (ECI). The amount is based on 365 days, which includes deployment (mobilization, transit, and sea trials)—25 January–4 March 2009. The weighted average operating and standby day rates for the period are \$76,939 and \$74,730, respectively. The budget allows for one CPI-U base adjustment of 2.46% effective 1 October 2008 and two ECI base adjustments averaging 2.64% effective 1 October 2008 and 1 April 2009.

**Fuel and Lubricants**—Fuel for the riserless vessel.

SOC—None budgeted.

POC—FY09 ship operations fuel purchases are estimated at a total of 7,807 metric tons: 2,700 metric tons in Singapore at \$516 per metric ton; 2,100 metric tons in Honolulu, Hawaii (2 refuelings) at an average cost of \$509 per metric ton; 1,500 metric tons in Victoria, British Columbia at \$625 per metric ton; and 1,500 metric tons in Yokohama, Japan at \$530 per metric ton. Prices per metric ton are based on the published price as of 6 March 2009 plus a 15% inflation factor. Due to a sharp decline in fuel prices since September 2008, funds committed to the ODL subcontract in FY08 for the Singapore refueling are sufficient to offset the costs of the Singapore, Honolulu (2) refuelings and a portion of the Victoria refueling. (It is estimated that the fuel remaining when the vessel bunkered its first operations refueling in Singapore is sufficient for any SODV-related activities occurring during the transit to Honolulu.)

**Per Diem**—Shipboard catering.

SOC—None budgeted.

POC—Costs associated with meals and berthing on the vessel and cleaning of the laboratory stack. Estimate is based on a shipboard party of 60 participants at \$30/day/person for the period 25 January–30 September 2009. Also included is \$1,500 for meals served during port calls to nonseagoing personnel. This category does not include per diem for the ship subcontractor's sailing crew and drilling personnel, as they are accounted for in the day rate unless charged as a reimbursable (see "Day Rate" above).

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

SOC—None budgeted.

POC—Port calls are scheduled for Singapore (mobilization); Guam (1 day); Honolulu, Hawaii (2 port calls at 5 days each); San Diego, California (1 day); Victoria, British Columbia (5 days); and Yokohama, Japan (5 days); in support of a total of four expeditions. (Funds for the Singapore, Guam, and first Honolulu port call were committed to the ODL subcontract in FY08.)

*Insurance*—Annual insurance premiums for Subcontractor and TAMRF.

SOC—None budgeted.

POC—Subcontractor's premium costs for All Risks Marine Hull and Machinery and Removal of Wreck insurance and TAMRF premium costs for General and Automobile Liability, Workers Compensation, Cargo, Excess Liability, Third Party Property, Control of Well, Charters Legal Liability, and Contractor's Pollution coverage for the vessel. Premium amounts are based on 249 days of coverage. The premium period is 25 January–1 October 2009. (It is assumed that the premium costs for the period 1 October–24 January 2009 will be charged to SODV.)

*Travel–ODL*—Subcontractor transportation.

SOC—None budgeted.

POC—Airfare for ship subcontractor's crews to/from three scheduled port calls—Honolulu, Hawaii; Victoria, British Columbia; and Yokohama, Japan. 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. (Funds for crew changes at the port calls in Singapore and Guam and the first port call in Honolulu, Hawaii, and travel costs for a port call reconnaissance trip by the subcontractor's logistics representative were committed to the ODL subcontract in FY08.)

*Relocation*—Relocation costs for new employees.

SOC/POC—Relocation costs for new employees (TAMU).

*Training*—Registration, transportation, per diem, and lodging expenses related to professional training and attendance at professional meetings.

SOC/POC—Registration and travel costs for professional and safety training courses and meetings (TAMU).

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

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

*Insurance*—Annual insurance premiums.

SOC/POC—Annual insurance premiums for USIO vehicles.

*Services*—Expert assistance.

SOC—Annual physical examinations for seagoing personnel, copier services, external copying and printing services, vehicle and warehouse equipment repair, testing and calibration of laboratory instruments, and machine shop services.

POC—Annual physical examinations for seagoing personnel, copier services, vehicle and warehouse equipment repair, equipment testing and calibration, machine shop services, weather analysis for Initial Proposal Evaluations, and a cementing engineer to provide a plan for the Juan de Fuca remedial cementing program.

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

SOC/POC—Rental of a crane and truck to support warehouse and logistical services.

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

SOC—None budgeted.

POC—Costs for possible medical evacuations (\$25,000) and miscellaneous reimbursables (\$5,000) payable to the ship's subcontractor.

*Recruiting*—Employee recruitment.

SOC/POC—Local advertisements, advertisements in science and trade journals, and other costs related to filling/replacing positions and recruiting professional staff for Phase 2 operations.

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

SOC/POC—Maintenance and repair of office equipment, postage meter, vehicle fleet, equipment in warehouse, overhead cranes, other loading dock equipment, and laboratory and safety equipment.

*Library*—Books, journals, and other resources.

SOC/POC—Technical books, journals, resources, and subscriptions to professional materials.

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

SOC/POC—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 FY09 have already been paid, so these subcontracts are not subject to indirect cost during FY09. There is one new subcontract for environmental assessment; the

first \$25,000 of this subcontract will be subject to indirect costs in FY09. MTDCs are the total direct costs minus these exceptions.

## 7. ENGINEERING DEVELOPMENT

### 7.1. GOALS

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

### 7.2. DELIVERABLES IN FY09

No deliverables are scheduled for FY09.

### 7.3. BUDGET

With no deliverables scheduled in FY09, there are no funds budgeted for this WBE.

## 8. CORE CURATION

### 8.1. GOALS

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

### 8.2 DELIVERABLES IN FY09

**Policy and Procedures:** Work with other IOs, the SAS, and IODP-MI to review and revise the IODP Sample, Data, and Obligations Policy, as needed, and implement a policy for IODP core curation. Work closely with staff to coordinate, standardize, and document curatorial procedures for IODP cores and samples.

**Sample and Curation Strategies:** Plan sample and curation strategies for upcoming USIO expedition and review all shipboard and moratorium-related requests in coordination with the other members of the Sample Allocation Committee (SAC) for each expedition.

**Sample Materials Curation System (SMCS):** Continue implementation of the SMCS and work with curatorial staff from other IOs to suggest further refinements, as needed.

**Sample Requests:** Respond to postmoratorium sample requests from the scientific community.

**Core Sampling:** Provide curator specialist on board the drillship to supervise core sampling during ship operations.

**Core Curation:** Conduct all responsibilities associated with curation of core collections at the GCR and provide services in support of core sampling, analysis, and education.

**Use of Core Collection:** Promote the outreach use of the core collection in collaboration with IO and IODP-MI education/outreach personnel by providing materials for display at meetings or museums, as well as conducting tours and supporting other USIO outreach activities.

**GCR Facility:** Reorganize DSDP, ODP, and IODP core collection into chronological order from oldest to youngest, and maximize storage space for future core.

**Meetings:** Host and/or participate in annual IODP curatorial staff meeting. Act as IO liaison to meetings with the other IOs, IODP-MI, and the SAS, as appropriate.

**Legacy Documentation.**

### 8.3. BUDGET

Core Curation				
Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
Salaries and Fringes	83,000	290,000	0	373,000
Travel	12,105	36,316	0	48,421
Supplies	3,000	9,000	0	12,000
Shipping	4,500	13,500	0	18,000
Communication	829	2,486	0	3,315
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	3,304	9,911	0	13,215
Training	529	1,586	0	2,115
Business Conferences	100	300	0	400
Services	175	525	0	700
Maintenance and Repair	2,500	7,500	0	10,000
<b>Total Direct Costs</b>	<b>106,738</b>	<b>361,213</b>	<b>0</b>	<b>467,951</b>
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
<b>Total Core Curation</b>	<b>\$106,738</b>	<b>\$361,213</b>	<b>\$0</b>	<b>\$467,951</b>

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.

SOC—Salaries, fringes, and sea pay for staff supporting the USIO (see Section 3.1. FTE Allocation Table).

POC—None budgeted.

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

SOC—IODP meetings and workshops, other IO and USIO meetings including an annual IODP Curators meeting, a biannual marine core curator's conference, and travel costs for TAMU staff who will sail on the first transit and/or sail on FY09 expeditions and the first FY10 expedition.

POC—None budgeted.

**Supplies**—Office and operational supplies.

SOC—General office supplies, printer supplies, general laboratory supplies, specialized supplies for sampling and curatorial tasks, and supplies for packing extra-large shipments, packing deep frozen microbiological or hydrate shipments, and hosting sampling parties.

POC—None budgeted.

**Shipping**—Postage, express mail, and freight.

SOC—Postage for regular correspondence, regular-sized sample shipments to scientists, and as many as ten special sample shipments for FY09 (for deep-frozen microbiological samples, U-channels, or whole core sections for XRF scanning) at an average cost of \$1,000 each.

POC—None budgeted.

**Communication**—Telephone and fax charges.

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

POC—None budgeted.

**Contractual Services**—None budgeted.**Equipment**—None budgeted.**Other Direct Costs**—Costs not covered in other categories.**Training**—Registration, transportation, per diem, and lodging expenses related to professional training.

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

POC—None budgeted.

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

SOC—Expenses for sampling parties at the GCR.

POC—None budgeted.

**Services**—Expert assistance.

SOC—Annual physical examinations for seagoing personnel and security check for one new hire.

POC—None budgeted.

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

SOC—Repairs and maintenance for storage buildings; refrigeration units; deep freezers; laboratory, repository, and office equipment; forklift; and shrink-wrap machine.

POC—None budgeted.

## 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 ESO log data.

### 9.2. DELIVERABLES IN FY09

**Expedition Data:** Maintain and manage databases supporting expedition planning. 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. Provide database services for ESO log data.

**Program-wide Access Portal:** Generate USIO metadata for IODP Program-wide access portal.

**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.**

### 9.3. BUDGET

Data Management				
Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
Salaries and Fringes	688,645	754,259	486,482	1,929,386
Travel	32,323	44,818	36,964	114,105
Supplies	20,116	16,046	12,562	48,724
Shipping	1,141	728	279	2,148
Communication	6,223	8,098	6,960	21,281
Contractual Services	0	0	0	0
Equipment	37,658	34,277	55,031	126,966
Other Direct Costs	171,689	267,779	265,991	705,459
Training	12,841	21,171	21,353	55,365
Business Conferences	110	110	220	440
Software	35,233	35,233	70,466	140,932
Services	38,580	125,540	4,901	169,021
Maintenance and Repair	84,447	84,947	168,394	337,788
Library	478	778	657	1,913
<b>Total Direct Costs</b>	<b>957,795</b>	<b>1,126,005</b>	<b>864,269</b>	<b>2,948,069</b>
Modified Total Direct Costs (if applicable)	351,753	136,601	36,214	524,568
<b>Indirect Costs or Administrative Fees</b>	<b>186,429</b>	<b>72,399</b>	<b>19,193</b>	<b>278,021</b>
<b>Total Data Management</b>	<b>\$1,144,224</b>	<b>\$1,198,404</b>	<b>\$883,462</b>	<b>\$3,226,090</b>

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.

SOC/POC—Salaries and fringes for staff supporting the USIO (see Section 3.1. FTE Allocation Table).

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

SOC—IODP meetings and travel costs for USIO staff who will work at port calls, sail on the first transit, and/or sail on FY09 expeditions, and for TAMU staff who will sail on the first FY10 expedition. Also includes LDEO travel to professional training courses and meetings.

POC—Travel costs for USIO staff who will support port call, sail on the first transit, and/or sail on FY09 expeditions, and for TAMU staff who will sail on the first FY10 expedition. Also includes LDEO travel to professional training courses and meetings.

**Supplies**—Office and operational supplies.

SOC—General office supplies; electronic media and other computer supplies with an acquisition cost of less than \$1,000 (for TAMU); printer and copier supplies; paper; expendables and small hardware necessary for continued operation and maintenance of IT resources; digital photographic supplies (e.g., drum scanner supplies, CDs, DVDs, and tapes) for processing images on shore; and software for all shore-based elements at LDEO.

POC—General office supplies and electronic media and other computer supplies with an acquisition cost of less than \$1,000 (for TAMU). 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.

SOC—Postage for regular correspondence and small packages, data and photo requests, and other shipping needs.

POC—Postage for regular correspondence and small packages.

**Communication**—Telephone and fax charges.

SOC/POC—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.

SOC/POC—Computer and network equipment to replace aged network models, workstations, printers, laptops, plotters, and monitors; and workstations, laptops, and monitors for new staff.

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

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

SOC/POC—Registration and 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 USIO.

SOC/POC—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.

SOC/POC—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.

SOC—Rental for storage of paper prime data, annual physical examinations for seagoing personnel, TAMU Physical Plant services, IT expert assistance services, copier services, external copying and printing services, safe deposit box rentals, and back-up services.

POC—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.

SOC/POC—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.

SOC/POC—Books, professional publications, and documentation materials required for reference.

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

SOC/POC—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 FY09 have already been paid, so these subcontracts are not subject to indirect cost during FY09. There is one new subcontract for environmental assessment; the first \$25,000 of this subcontract will be subject to indirect costs in FY09. MTDCs are the total direct costs minus these exceptions.

## 10. PUBLICATIONS

### 10.1. GOALS

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

IODP publications include Quarterly and Annual Reports for the USIO; a *Scientific Prospectus* and *Preliminary Report* for each USIO, CDEX, and ESO expedition; and *Proceedings of the Integrated Ocean Drilling Program* volumes for USIO, CDEX, and ESO expeditions.

### 10.2. DELIVERABLES IN FY09

IODP Publications: Advise IODP-MI on scientific publication efforts. The following publications will be published or in production:

- ~10 scientific reports edited and produced (Scientific Prospectuses and Preliminary Reports),
- 4 *Proceedings of the Integrated Ocean Drilling Program* volumes in production covering expedition reports content from 4 CDEX expeditions and 3 USIO expeditions, and
- 10 *Proceedings* volumes in production covering expedition research results content from 12 IODP Phase 1 expeditions (10 USIO expeditions and 2 ESO expeditions) and 3 IODP Phase 2 CDEX expeditions.

IODP Reports: The following reports will be edited and produced:

- 4 IODP-USIO quarterly reports,
- 2 IODP-USIO Annual Program Plans (IODP-MI SOC/POC and NSF SOC/POC with Systems Integration Contract Appendix), including original versions and all revisions required by funding agencies, and
- 1 IODP-USIO FY08 Annual Report (or other year-end document).

Report of citations statistics for IODP.

Management:

- Manage postexpedition publication citations,
- Manage peer review process for IODP *Proceedings* volumes (~60 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 2 CDEX expeditions.

Legacy Documentation.

### 10.3. BUDGET

<b>Publications</b>				
<b>Element/Expense Category</b>	<b>SOC-OPS</b>	<b>SOC-NonOPS</b>	<b>POC</b>	<b>Total</b>
Salaries and Fringes	14,000	1,121,000	0	1,135,000
Travel	39,766	26,041	0	65,807
Supplies	0	29,820	0	29,820
Shipping	0	6,886	0	6,886
Communication	0	8,000	0	8,000
Contractual Services	0	0	0	0
Equipment	0	0	0	0
Other Direct Costs	0	35,348	0	35,348
Training	0	17,429	0	17,429
Services	0	10,557	0	10,557
Equipment Rental	0	286	0	286
Maintenance and Repair	0	5,063	0	5,063
Library	0	2,013	0	2,013
<b>Total Direct Costs</b>	53,766	1,227,095	0	1,280,861
Modified Total Direct Costs (if applicable)	0	0	0	0
Indirect Costs or Administrative Fees	0	0	0	0
<b>Total Publications</b>	<b>\$53,766</b>	<b>\$1,227,095</b>	<b>\$0</b>	<b>\$1,280,861</b>

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.

SOC—Salaries and fringes for USIO staff providing publications support to all IODP IOs (see Section 3.1. FTE Allocation Table).

POC—None budgeted.

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

SOC—Travel costs for IO and USIO meetings, to bring off-site USIO staff to participate in on-site meetings, and for TAMU staff who will work at port calls and/or sail on FY09 expeditions and the first FY10 expedition.

POC—None budgeted.

**Supplies**—Office and operational supplies.

SOC—General office supplies.

POC—None budgeted.

**Shipping**—Postage, express mail, and freight.

SOC—Postage and shipping for regular correspondence and IODP scientific reports, and freight charges for bulk shipments from the publications warehouse.

POC—None budgeted.

**Communication**—Telephone and fax charges.

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

POC—None budgeted.

**Contractual Services**—None budgeted.**Equipment**—None budgeted.**Other Direct Costs**—Costs not covered in other categories.**Training**—Registration, transportation, per diem, lodging expenses, and membership dues related to professional training.

SOC—Registration and travel costs for professional training courses and meetings.

POC—None budgeted.

**Services**—Expert assistance.

SOC—Payments to IODP Editorial Review Board members, duplication costs for producing a *Proceedings of the Integrated Ocean Drilling Program* volume DVD with Expedition Reports content, and annual physical examinations for seagoing personnel.

POC—None budgeted.

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

SOC—Rental of a water cooler.

POC—None budgeted.

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

SOC—Copier and forklift maintenance agreements.

POC—None budgeted.

**Library**—Books, journals, and other resources.

SOC—Reference books and subscriptions.

POC—None budgeted.

# 11. EDUCATION

## 11.1. GOALS

The USIO, through Deep Earth Academy, will facilitate U.S. education activities in cooperation with other U.S. education and outreach groups; conduct teacher education activities; develop, test, and disseminate educational curriculum highlighting IODP science programs. This requires direct and indirect interfacing with students and educators and conducting a variety of activities targeting U.S. middle school, high school, undergraduate, family, and museum audiences.

## 11.2. DELIVERABLES IN FY09

No science operating cost/platform operating cost deliverables are scheduled for FY09.

## 11.3. BUDGET

With no deliverables scheduled in FY09, there are no funds budgeted for this WBE.

## 12. OUTREACH

### 12.1. GOALS

USIO Outreach responsibilities include establishing measures to effectively communicate both shore- and ship-based components of IODP activities to the public in collaboration with IODP-MI and the other IOs, and encouraging awareness of and interest in the scientific results of the Program. Outreach goals for FY09 include the following:

Raise visibility of IODP as a cutting-edge international earth science research program to new and existing audiences.

Target informational outreach to the public and specific identified audiences including science and general-interest media, scientists-at-large, engineers-at-large, industry scientists, and communities/groups that can be considered agents of learning and change (i.e., educators and students, not in formal education contexts), managers of public space, and decision makers at large national concerns.

Use expeditions and scientific achievements to promote scientific ocean drilling and the scientific data and analysis that emerge from it, and make the connection between the emerging scientific knowledge and its positive contribution to society worldwide.

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 public spaces, and in the media.

Maximize efforts in support of an integrated IODP outreach team, with common core messages and common informational materials.

### 12.2. DELIVERABLES IN FY09

SOC-related activities include portions of support for the following deliverables:

**Media Outreach:** Conduct media outreach surrounding the return of the *JOIDES Resolution* to international operations. Conduct media outreach at Geological Society of America and American Geophysical Union annual meetings, in support of Program scientists' publication in high-profile scientific journals, and in support of jointly sponsored exhibitions at other science and industry conferences identified as internationally important.

**Media Awareness:** Conduct media awareness training for future expedition Co-Chief Scientists.

**Outreach Activities:** Coordinate Outreach activities with IODP-MI, ECORD, and CDEX.

**Legacy Documentation.**

## 12.3. BUDGET

Outreach				
Element/Expense Category	SOC-OPS	SOC-NonOPS	POC	Total
Salaries and Fringes	0	20,227	0	20,227
Travel	0	6,000	0	6,000
Supplies	0	0	0	0
Shipping	0	0	0	0
Communication	0	0	0	0
Contractual Services	0	14,250	0	14,250
Equipment	0	0	0	0
Other Direct Costs	0	0	0	0
<b>Total Direct Costs</b>	0	40,477	0	40,477
Modified Total Direct Costs (if applicable)	0	0	0	0
<b>Indirect Costs or Administrative Fees</b>	0	13,762	0	13,762
<b>Total Outreach</b>	<b>\$0</b>	<b>\$54,239</b>	<b>\$0</b>	<b>\$54,239</b>

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.

SOC—Salaries and fringes for staff supporting the USIO (see Section 3.1. FTE Allocation Table).

POC—None budgeted.

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

SOC—Portions of the participation in outreach to stakeholders, press events, media training, and staffing of booths at national and international meetings.

POC—None budgeted.

**Supplies**—None budgeted.

**Shipping**—None budgeted.

**Communication**—None budgeted.

**Contractual Services**—Consultant and contract services.

SOC—Platform enrichment activities, including preparation of public relations materials, posters, and videos; media awareness training; and booth rentals and associated costs at national meetings.

POC—None budgeted.

**Equipment**—None budgeted.

**Other Direct Costs**—None budgeted.

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

SOC—The approved provisional rate of 34% 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 TAMRF and LDEO subcontracts = \$68,000). The G&A costs for the two subcontracts (LDEO and TAMRF) are split 50-50 between SOC G&A and POC G&A (\$34,000 each = \$17,000 SOC + \$17,000 POC).

POC—None budgeted.