

# IODP Annual Program Plan

FY2012

[Appendix A](#)

# Appendix A

IODP Management International, Inc.

Nov 25, 2011

FY2012

IODP-MI



**IODP-MI**  
INTEGRATED OCEAN DRILLING PROGRAM  
MANAGEMENT INTERNATIONAL

# Appendix A

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## **1 Introduction**

A Central Management Organization (CMO) was established with the concurrence of Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the U.S. National Science Foundation (NSF) to develop and manage the Integrated Ocean Drilling Program (IODP) science operations and implementation plans. The CMO functions are provided by IODP Management International, Inc. (IODP-MI) through a ten-year contract with NSF. The contract period is in sync with the duration of IODP (FY2003-FY2013).

IODP-MI headquarters office has been located in the campus of Tokyo University of Marine Science and Technology in Tokyo since January 2010. The accounting, contracting and auditing functions are conducted from IODP-MI office in Washington, DC in compliance with U.S. federal regulations as required by the contract with NSF.

In FY2011, the New Science Plan of International Ocean Discovery Program (NSP: FY2013-FY2023) was delivered to the International Working Group Plus (IWG+) in June 2011 for reviews in each member country. The development of the NSP initiated from the IODP New Ventures in Exploring Scientific Targets (INVEST) meeting in September 2009 in Bremen.

The Science Advisory Structure (SAS) transforms into a more streamlined and efficient structure from the start of FY2012. The Second Triennium Review Report by an external international committee recommended a new SAS structure to IODP-MI BOG and IWG+ in 2010. SASEC made recommendations in implementing the changes in 2011 by defining the terms of references of the new SAS constituent committees and panels. IODP-MI Board of Governors has disbanded SASEC as of September 30, 2011 in order that the new SAS structure starts on October 1, 2011.

The IWG+ activities are supported by IODP-MI. IWG+ continues to work on defining the principles of IODP beyond 2013. The program executive authority is to reside in the Program Governing Board (PGB), which will replace the IWG+ and the IODP Council once the participating members of the new IODP come to formal agreement. Regarding the CMO functions, the current agreement by IWG+ is to retain the CMO to conduct integrative activities for IODP. IODP-MI will prepare a proposal in FY2012 in order to seamlessly continue to serve the program beyond 2013.

### **1.1 Annual Program Plan**

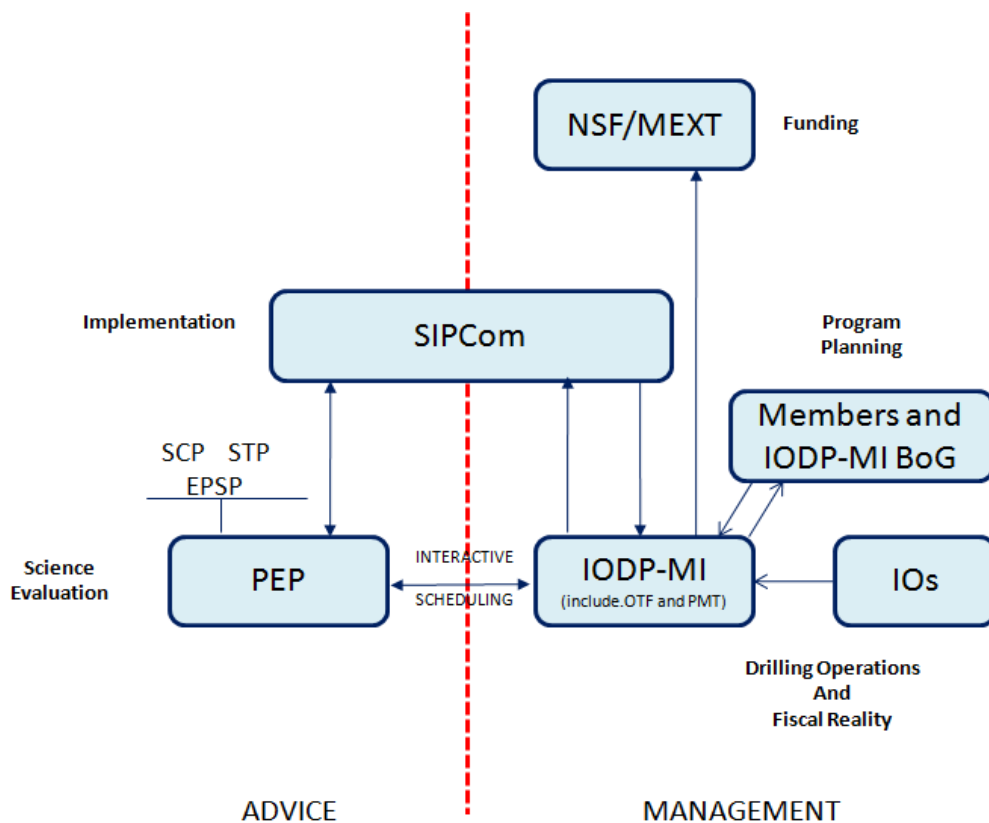
The CMO:

a) receives advice and recommendations from a Science Advisory Structure (SAS) on scientific priorities and plans; b) requests plans from Implementing Organizations (IOs) responds to this advice; and c) works with the IOs and the SAS to produce an integrated IODP Annual Program Plan (APP) (see [Fig. IODP-MI-1](#)).

IODP-MI submits the program's Annual Program Plan (APP) to the Scientific Implementation and Policy Committee (SIPCom), which is the highest authority of the SAS for review and approval prior to the consideration by the IODP-MI Board of Governors (BoG) and Lead Agencies (LAs). The NSF in consultation with MEXT is responsible for contractual approval of the APP. After approval by the LAs, any significant changes in the APP are to be considered

and approved by IODP-MI and LAs prior to implementation, in consultation with SIPCom and the IOs, as appropriate.

The Annual Program Plan is to be consistent with budget guidance provided by the Lead Agencies to IODP-MI. The APP includes a presentation of total program costs, which include both Science Operation Costs (SOCs) and Platform Operation Costs (POCs). IODP-MI will manage SOC funds provided under contract from the NSF. The NSF is expected to administer the contract with due consideration to the interest of MEXT. POCs will be provided directly to the IOs from the LAs and ECORD Management Agency (EMA). The SOC to ECORD Science Operator (ESO) is directly funded through EMA and not included in the IODP-MI contract with NSF.



**Figure IODP-MI- 1: The flow of advice towards planning and expedition scheduling**

Scientific advice to the IODP management structure occurs via advisory panels and committees. Scientific planning for the IODP is provided by a Science Advisory Structure (SAS). Scientific merit is assessed by the Proposal Evaluation Panel (PEP). IODP Management International, Inc. (IODP-MI) is the Central Management Organization (CMO) that translates the scientific priorities of the ocean-drilling community into technically and financially viable program plans. Central to its work in this regard is the Operations Task Force (OTF) chaired by the CMO, with five senior representatives from PEP and representatives from the Implementing Organizations (IOs). Long-range planning and overall programmatic priorities are defined by the Science Implementation and Policy Committee (SIPCOM). The OTF works closely with SIPCOM to supply the most attractive and efficient science schedules that best will meet the programmatic priorities set by SIPCOM. SIPCOM in turn annually reports its priorities and long term plans to the programs fiscal authority (Lead Agencies NSF and MEXT the IODP Council. (from October 2013 LA and Council will form the Program Governing Board).

## 1.2 SAS Support

IODP-MI is responsible for providing support and oversight to SAS. IODP-MI will provide support to the Scientific Implementation and Policy Committee (SIPCom), the Proposal Evaluation Panel (PEP) and the various SAS panels, and for all proposals and site survey data handling. IODP-MI works with SIPCom and PEP to conduct scientific reviews and chairs long-term thematic review committees. The President serves as a nonvoting member in the SIPCom.

## 1.3 Operational Tasks, Engineering Development

IODP-MI is responsible for the integration of planning and coordination of IODP Expedition Operational tasks and Engineering Development. These tasks require close coordination with SAS and IOs and other subcontractors through meetings and discussions. Operations Task Force and Operations Review Task Force carry out the two important functions of developing schedule options and operational reviewing. Optimization of existing technology on the various platforms is the responsibility of the IO, and they each have their own engineering advisory groups. Engineering development and scoping may also be pursued through direct contracting of tasks by either the CMO or the IOs to commercial companies, including advanced well design. Since the new SAS has no entity to advise on engineering, the CMO may need to form its own engineering advisory entity.

## 1.4 Data Management

IODP-MI, in conjunction with a Data Management Coordination Group and a Data Management Task Force (as needed), is responsible for developing data management policy and data management implementation. IODP-MI is also responsible for defining and monitoring all sub-contracts related to program data management, including the program data portal, and the technical aspects (i.e., non-content) of the program's central Web page.

## 1.5 Publications

IODP-MI is responsible for monitoring various IODP publications, producing the *Scientific Drilling* journal in collaboration with ICDP, and is the publisher of all program publications.

## 1.6 Outreach

IODP-MI is responsible for developing outreach policy and implementation of this for the program. The task includes maintaining the programs' central website, coordinating, and carrying out international outreach activities to various targets in coordination with Implementing Organizations and Program Member Offices. Prime targets are the broader, international public and media, and the broader science community (i.e., major conferences and exhibitions).

IODP-MI chairs Outreach Task Force Meeting to define outreach strategies and maximize synergy between outreach activities carried out by the CMO, IOs, PMOs, and individual scientists active in such activities.

## **1.7 Summary of IODP-MI FY2010 – 2011 Activities**

### **1.7.1 Management and Administration**

- 1) DC Office was downsized in personnel and office space at the end of December 2009. 5 positions including 2 key personnel terminated, 3 positions moved to Tokyo (President, Operations Manager and Operations Coordinator) and 4 positions retained in DC. DC Office was expanded at the same address in order to secure office space for 4~5 people to work with meeting space. It was recognized that the accounting, contracting, auditing and HR activities in DC require more than 2 personnel to be accountable to US Federal regulations and operate with appropriate internal control and compliance. Legally, Tokyo Office and DC Office are separate and cannot assume the responsibility of the other office.
- 2) Tokyo Office (HQ) was established in November 2009 and started operation from January 2010, merged with Sapporo Office in March and the official Tokyo Office independent accounting started in April. During the course of FY10 and 11, Tokyo staff members became 12 FTEs (full-time employees). A Science Director is scheduled to join starting in July/August.
- 3) New activities related to the reform of the IODP structure and the renewal of the program include Second Triennium Review Report and subsequent SAS reform including supporting workshops, New Science Plan and associated meetings, and support of International Working Group+. The present IODP scheme as defined in MOUs is that the IODP Member contribution defines the presence in SAS. Recognizing the increase of IODP membership is a key factor to sustain the program, IODP-MI continues dialogues with the current IODP Members as well as potential new Members.

### **1.7.2 Engineering Development deliveries / achievement**

IODP-MI's primary role in the Engineering Development process is to facilitate acquisition of technology needed for IODP to meet the objectives described in the Initial Science Plan and to oversee the contracts that are implemented to study and develop the required technology. Based on SAS advice, IODP-MI had planned to conduct five engineering development projects and three technical/feasibility studies.

- 1) Long Term Borehole Monitoring System (LTBMS):  
  
The last phase of long-term environmental test was planned and conducted in FY10, the test and the project was successfully completed. All information including tool drawings, test data were delivered. LTBMS technology is available for deep riser hole, multiple sensor observatory installation.
- 2) Motion Decoupled Hydraulic Delivery System (MDHDS):  
  
SET-P, T2P type sensor's drill pipe motion de-coupling system during measurement. FY10-11, the tool has been fabricated, and fully functioning. In FY11, the land field test will be completed and plan to conduct sea test in FY12.



3) Simple Cabled Instrument for Measuring Parameters In-situ (SCIMPI)

Pressure, Temperature & Resistivity Observatory system, which can be installed by wireline cable. FY10-11, the tool has been fabricated, and conducted several tests. The development will be completed in FY11, including calibration of sensors.

4) Common Deployment System:

Common sensor deployment/release system, using for MDHDS and SCIMPI. Two sets of tools were delivered in FY11, and tested with MDHDS.

5) Multi-sensor Magnetometer Module logging tool (MMM):

The design and sensor selection had been completed. The tool is fabrication at this moment, expect to be completed FY11 summer.

6) Core Quality and Quantity Study:

To quantitatively evaluate coring results in an effort to identify, and ultimately remediate, factors that affect the quantity and quality of recovered core. It is very slow progress, and difficult to find proper methodology.

7) Project Mohole Feasibility Study:

First step of Mohole project study to find out reality of the project. The final report has been submitted. The report concluded the project is/will be feasible/doable with the current existing technology and achievable engineering development near future.

8) Feasibility Study for an engineering development project (wireline hydraulic testing and borehole imaging tool for stress measurement):

Wire line operated stress measurement tool development project. External technical review will be held FY11 summer.

### **1.7.3 Data Management**

#### **FY10 Planned Deliverables**

In FY2010 IODP-MI subcontracts include Scientific Earth Drilling Information System (SEDIS) enhancements and maintenance, Sample Materials Curation Management System (SMCS) upgrade and hosting, and Site Survey Data Bank (SSDB) operations. IODP-MI will also host and maintain the proposal database (PDB), and host and maintain the IODP user registry, and other IODP-MI data systems.

#### **FY10 Activities**

FY10 SEDIS activities included completion of SEDIS II, the publications catalog. SEDIS II made all IODP publications keyword searchable and allows for searching for all IODP-related publications. It also provides links from IODP publications to the related datasets.

SMCS was operated for all IOs and scoping for the SMCS v2 upgrades was initiated.

SSDB was operated and SSDB holdings metadata became a SEDIS data source. SSDB metadata continues to be regularly harvested and SSDB holdings are discoverable via SEDIS.

Proposal database was maintained and operated for 2 proposal submission periods.

Other IODP-MI data systems (e.g., Holes KML database) were updated and maintained.

#### **FY11 Planned Deliverables**

In FY2011 IODP-MI data management activities include completion of the Scientific Earth Drilling Information System (SEDIS) phase III development project, completion of the Sample Materials Curation Management System (SMCS) upgrade and continued hosting of the system, Site Survey Data Bank (SSDB) operations. IODP-MI will also update host and maintain the proposal database (PDB), the IODP user registry, and other IODP-MI data systems. Initiate an effort to digitize and catalogue a set of analog ODP documents in the possession of Dr. Keir Becker.

#### **FY11 Activities**

Three SEDIS contracts are currently in progress, with delivery expected by September 2011. These contracts will implement web services access to IOs data via SEDIS infrastructure, enabling analytical and visualization software to integrate IODP data as an automatically available science data source.

SMCS upgrade is in progress. Significant effort was devoted to collecting user functional and design requirements in order to avoid the user interface dissatisfaction issues that are a major problem of the current system. Beta testing of the system has been conducted with curation and science user groups. Results of beta testing produced additional development work. Upgraded system is expected to be available by early FY12.

SSDB operation was smooth, with successful implementation of the IODP-MI administered SSDB-in-a-box for on-site backup access during SSP meetings.

Proposal Database version 2 (PDB v2) is underway and will be in production operation by 1 Sept. 2011 for use during next proposal submission deadline.

IODP User Registry, Holes KML file, DOI registration script and other IODP-MI systems have been updated and maintained.

Digitization of ODP legacy files project was scoped by IODP-MI and will be performed by Consortium for Ocean Leadership, the keeper of the ODP legacy sites, under contract to IODP-MI.

### **1.7.4 Publications**

#### **FY10 Planned Deliverables**

Publish two issues of *Scientific Drilling* are planned for FY 2010. Scientific reports and thematic white papers (e.g., expanded workshop reports) will be peer-reviewed.

The IODP-MI will coordinate with IOs publications staff and to deliver program-wide IODP publications services.

#### **FY10 Activities**

Two issues of *Scientific Drilling* were published with peer-reviewed Science Reports.

IODP-MI and IOs staff worked closely on publication issues, including requests for extensions to Preliminary Reports to promote publishing IODP research in high-impact peer-reviewed journals, resolving with CrossRef DOIs, maintaining AGI-GeoRef Ocean Drilling Citation Database, review and discussion of publications policy and guidelines. IODP-MI staff review and edit all IODP publications prior to their publication.

#### **FY11 Planned Deliverables**

Two issues of *Scientific Drilling* are planned for FY2011. Scientific reports will be peer reviewed. The IODP-MI will coordinate with IOs publications staff and to deliver program-wide IODP publications services. IODP-MI will also sub-contract for professional science writing services for development of the Post-2013 scientific ocean drilling Science Plan.

#### **FY11 Activities**

Two issues of *Scientific Drilling* were published on schedule for timely distribution at AGU and EGU.

IODP-MI and IOs staff worked closely on publication issues, including requests for extensions to Preliminary Reports to promote publishing IODP research in high-impact peer-reviewed journals, resolution of unapproved publication delays, resolving with CrossRef DOIs, maintaining AGI-GeoRef Ocean Drilling Citation Database, review of publications policy and guidelines and drafting/publishing of updates. IODP-MI staff review and edit all IODP publications prior to their publication.

*Illuminating Earth's Past, Present and Future*, The Science Plan for the International Ocean Discovery Program 2013 – 2023, was produced under IODP-MI contract and supervision and was published in June 2011.

### **1.7.5 Outreach**

#### **FY10**

Press releases and news stories with covering each expedition were issued and placed in international media on printed and on line. Significant scientific findings of the program and highlights of FY10 were also released. Participated in international scientific conferences and town hall meetings held in AGU, EGU and JPGU and presented updates on IODP activities, 2009-2010 expeditions and INVEST report. Videos to show program update and exhibition highlights were delivered by IOs and video on IODP and ESO activities would be delivered in FY11. Website project including development, improvement and updating the backend of the IODP.org website started in FY09 was continued in FY10.

#### **FY11**

Press releases issued on the program updates and expeditions were placed in notable international media both on printed and on line outlet including Nature, AGU (Eos), BBC. Participation in the international scientific conferences and exhibitions, AGU, EGU, AOGS, OTC, 3P Arctic and Goldschmidt went successfully with combination of Town Hall Meetings and press conferences. Town Hall meetings held in AGU, EGU and JPGU attracted the community and the media. The press conference held in AGU and EGU, resulted in numerous articles published in scientific journals and international media. Press conference on new science plan carried out in June in Amsterdam was web-streamed for targeting international media. Videos

development on INVEST, ESO and expeditions were delivered in FY11 and presented in the international scientific conferences and media conferences. IODP 16 pages brochures, flyer on new program 2013-2023, posters with technical achievements and engineering developments and some other items of collaterals were delivered, presented and distributed in international conferences, media events, port calls and educational purposes. Website development on re-engineering of content management system (CMS) started in spring in FY11 is planned to be completed in FY12.

## 2 Budget Summary

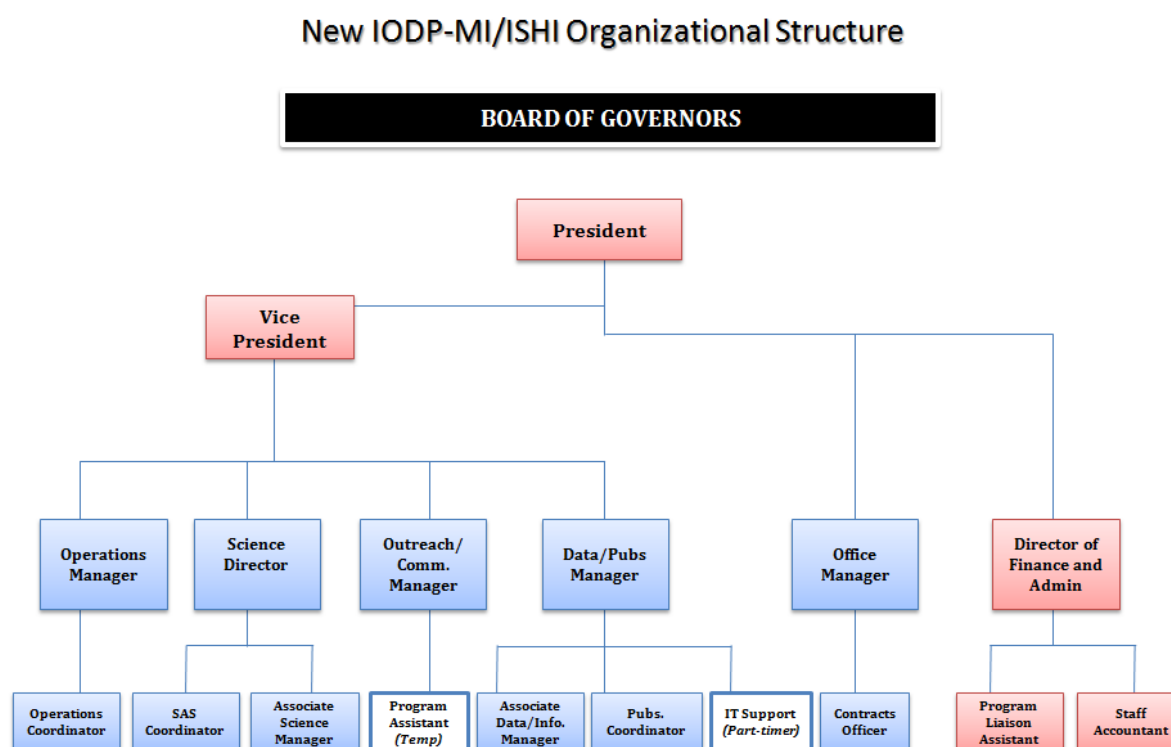
IODP-MI/ISHI ALL BUDGET SUMMARY	IODP-MI	ISHI	Total
Management & Administration	2,247,720	1,482,385	\$ 3,730,105
Engineer Development	545,000		\$ 545,000
Data Management	416,500	213,422	\$ 629,922
Publication	105,500	142,916	\$ 248,416
Outreach	40,000	598,287	\$ 638,287
<b>Total</b>	<b>\$ 3,354,720</b>	<b>\$ 2,437,010</b>	<b>\$ 5,791,730</b>

Table IODP-MI- 1: Budget Summary for FY2012

### 3 Organizational Structure

IODP-MI consolidated and relocated its offices located in Washington DC, US and in Sapporo, Japan during FY2010. The new headquarters that combines the science and operations management functions is located in the campus of Tokyo University of Marine Science and Technology, Tokyo, Japan. The Washington office closed at the end of 2009 and moved to a downsized office in DC retaining the accounting, contracting, and auditing functions for IODP-MI. The Sapporo office closed in February 2010 and ended its contractual relationship with AESTO at the end of March 2010. The IODP-MI established a new corporate status in Tokyo, Japan in order to seamlessly conduct CMO tasks across national borders. The new Japanese corporation established on November 11, 2009 is Ippan Shadan Hojin IODP-MI (ISHI). ISHI conducts business under the umbrella of IODP-MI (USA).

The structure of IODP-MI in FY2012 is shown in [Figure IODP-MI-2](#). IODP-MI as a U.S. Corporation will continue with the present Board of Governors and Membership and be responsible for the Tokyo Office and Washington Office management and the overall functions of IODP-MI as the CMO through the President.



July 1, 2011

Figure IODP-MI- 2: Organizational structure of IODP-MI in FY2012

Position	Name	WBE	SOC -Direct	Indirect	Office
President	Kiyoshi Suyehiro	M&A	100%	0%	DC/Tokyo
Vice President	Hans Christian Larsen	M&A	100%	0%	Tokyo
Operations Manager	Yoshihisa Kawamura	M&A	100%	0%	Tokyo
Science Director	Kevin Johnson	M&A	100%	0%	Tokyo
Associate Science Manager	Michiko Yamamoto	M&A	100%	0%	Tokyo
Operations Coordinator	Issa Kagaya	M&A	100%	0%	Tokyo
Data & Publications Manager	Jamus Collier	DM/Pub/Outreach	50%/30%/20%	0%	Tokyo
Associate Data & Information Manager	Taewoon Kim	DM	100%	0%	Tokyo
Outreach & Communications Manager	Miyuki Otomo	Outreach	100%	0%	Tokyo
Director of Finance and Administration	John Emmitte	M&A	100%	0%	DC
Staff Accountant	Ines Bala	M&A	100%	0%	DC
Program Liaison Assistant	Noriko Olson	M&A	100%	0%	DC
Contracts Officer	Mariko Tanaka	M&A	100%	0%	Tokyo
Office Manager	Satoko Kitahara	M&A	100%	0%	Tokyo
SAS Coordinator	Hiroko Osawa	M&A	100%	0%	Tokyo
Publications Coordinator	Mika Saido	Pub	100%	0%	Tokyo
Program Assistant	Yukie Yamamoto	Outreach /M&A	50%/50%	0%	Tokyo

**Table IODP-MI- 2: Organizational Structure of IODP-MI for FY2012**

The *IODP-MI President* (Program Manager<sup>\*</sup>) serves as the contractual interface with NSF. He is responsible for overall management of activities under the NSF/IODP-MI contract and all associated subcontracts, including the creation and submission of IODP Program Plans; for overall facilitation and support of the SAS in its prioritization of IODP science activities and planning, and for communication with the national IODP program offices. He also facilitates efforts by potential new members to join IODP. He is responsible for review and evaluation of IODP operational effectiveness and oversees IODP programmatic engineering development management. He is responsible for all IODP-MI employees. He serves on the IODP-MI Board of Governors and on IWG+.

The Vice President (Deputy Program Manager<sup>\*</sup>) oversees the managers of science planning, operations, data management and publications, and outreach and communication. The VP

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Contractual name of the position

chairs the IODP-MI senior managers meetings including office manager and finance manager, and acts as the corporation's chief program officer for all non-financial and contract matters. The VP works with the President on planning of corporate strategies, work with and supports SIPCOT in its prioritization of IODP science objectives, and supports long-term planning activities to achieve the IODP programmatic science goals. The VP is standing chair of the IODP Thematic Review panels. The VP also advises the President with regard to liaison with MEXT, NSF, and other IODP funding agencies; and facilitates communication with other nations and geoscience programs regarding IODP.

The Operations Manager (OPM) is the contact point within IODP-MI for all operational drilling activities and is responsible for the oversight of coordinating SAS and IOs in the scoping, scheduling and reviewing (operations) of IODP Expeditions, and related operational and engineering matters. The OPM is also responsible for Engineering Development oversights and coordination. The OPM reports to the VP. The OPM chairs the Operations Task Force (OTF), the Engineering Task Force (ETF), and the Operations Review Task Force. The OPM will work closely with the Science Director to facilitate the effective transition from the SAS science planning stage to the stage of science implementation and post expedition operational review. The OPM specifically will: (1) support the IODP-MI Operations Task Force and Project Management Teams set up by IODP-MI in order to develop the most efficient annual operational plans for drilling and down-hole experiments; (2) Chair the Operations review task Force (ORTF) and Project Management Team (PMT) meetings; (3) review the operational plans for all drilling related activities and the related budgets submitted to IODP-MI for inclusion in the annual program plan and assist upper management in discussion with the IOs in such matters; (4) With the Science Managers represent IODP-MI in SAS advisory panels and/or task forces, review drilling proposals for operational requirements, and assist in identifying best practices for obtaining drilling, core and sample measurements data; (5) Work with the drilling operators to identify areas for potential improvement in operations and engineering development; and (6) work with IODP-MI consultants or partners in the field of drilling engineering and advise upper management in such areas. The OPM has budget responsibility in areas related to operations review, OTF activities, and engineering.

The Operations Coordinator supports the OPM and assists with task force coordination, research, the handling of engineering development proposals, communication with IOs, and coordination of engineering development budgets, and reporting.

The Science Director and Associate Science Manager oversee and support SAS activities. The Associate Science Manager and SAS Coordinator report to the Science Director. The Science Director oversees all science planning and SAS activities, and works closely with the SAS in prioritization of IODP science objectives, activities and planning in order to most effectively meet the IODP programmatic science goals. The Science Director is chair of the IODP-MI Curatorial Board (CAB, Task Force Status) and attends IO curators' meetings as needed, and is jointly with the Data Manager responsible for overseeing IODP Core Curation. The Science Director is overseeing all SAS panel activities, is member of the OTF, and is Editor in Chief of the journal *Scientific Drilling*. The Science director reports to the VP and has budget responsibility in areas of SAS related activities (e.g., meetings, travel, coordination groups, works shops, Site survey data bank contracts, and proposal database. The Science Director has the responsibility to oversee the proper working and interaction between all SAS panels and



related TFs , that SAS ToR are adhered to, and updated as required, identify and deal with COI that may not have been identified by SAS chairs, and is the senior CMO representative at SAS panel meetings. The SD authorizes all SAS panel meetings on the basis of meetings request, approved minutes and proper agendas. The SD also works closely with the chair of PEP to conduct business as effectively as possible. The SD is also responsible for communication with the PMOs. The SD supervises the Associate Science Manager, and the SAS Coordinator, which assist the SD in conducting the oversight of SAS and science planning. Jointly with OPM, the SD also reviews Scientific Prospectuses and Preliminary Reports from IODP Expeditions.

The Associate Science Manager assists the SD in all daily tasks. In particular, preparations of meetings, proposal handling, arranging for external reviews, daily oversight of proposal and site survey database, generation of site survey data packages, and supporting the SCP. The ASM is also primarily responsible for production of draft minutes from SAS meetings (SIPCOM, plenum sessions at PEP), and is overseeing all daily communication with proponents and SAS panel members.

The SAS coordinator is responsible for all coordination of meeting logistics, information distribution, production and distribution of agenda books and related material.

The Data and Publications Manager oversees data management and publications; directs development of data management systems that meet IODP requests and oversees proper maintenance of data archival (legacy) functions at the IOs. The Data and Publications Manager also provides specifications for RFPs regarding data management and leads the development of the program data portal including links between IODP data management systems and other large databases in Earth sciences and oversees administration and maintenance of IODP-MI hosted data bases and Web-based data systems. He chairs task forces and coordination groups in data management. In addition, the Data and Publications Manager oversees all technical aspects of IODP Publications and assists the Vice President in oversight of IODP policies in the areas of publications and data. The DM is member of the CAB, and work with the IO curators in areas of IT supported sample request systems.

The Associate Data and Information Manager assists the Data and Publications Manager in the implementation and maintenance of data management subcontracts, assumes day-to-day responsibility for IODP-MI databases and Web-based data systems, is responsible for the integrity of IODP-MI Office servers and data systems. The Associate Data and Information Manager manages the generation of meta data, oversees assignment of digital object identifiers (DOI) to IODP publications, tracks IODP publications, and manages, assisted by the Publications coordinator, the production of the journal Scientific Drilling.

The Publications coordinator reports to the Data and Publications manager and assists the Data and Publications Manager for all coordination of publishing Science Drilling.

The Outreach and Communications Manager is responsible for coordinating Outreach with the IOs and the national organizations involved in IODP; for developing and maintaining the principal IODP web site, arranging IODP outreach events, cultivating media contacts, writing press releases, and publishing IODP brochures, producing community newsletters, and tracking metrics on outreach. The OCM reports to the VP and develops outreach strategies

under the supervision of the VP and in collaboration with Data and Publications manager. The OCM assists President in the outreach activities for the next phase of IODP.

The Director of Finance and Administration (in DC) works with IODP-MI President to manage the internal operations of the DC Office. Oversees IODP-MI's internal controls in compliance with the Federal requirements. Participates in establishing policies, procedures and protocols for the DC Office. Establishes standards of effectiveness, efficiency, and productivity for the DC Office. Works with Accountant assisted by a CPA firm to manage all aspects of budget, accounting, and finance of DC Office. Works with IODP-MI President to administer awards granted by NSF and other funding sources. Prepares annual program plan proposals and periodic reports. Serves as liaison to the NSF Contracting Officer. Works with senior managers of IODP-MI on international subcontracts.

The Contracts Accountant (in DC) is responsible for accounting, finance and administrative support to the Director of Finance and Administration. The position is also responsible for handling travel accountings.

The Office Manager (OM) organizes and supervises all the administrative activities that facilitate the smooth running of the IODP-MI Tokyo office (ISHI). The OM liaises with the Director of Finance and Administration for smooth running of ISHI administration and reports to the President. The office work activities include; (1)developing, updating and implementing policy manuals regarding human resources, accounting, health and safety, and other necessary items; (2)overseeing office expenditure and managing the budget and contracts; (3)overseeing the recruitment of new staff; (4) organizing the office layout and maintaining the condition of the office and supplies of stationery and equipment; (5)Acting as immediate contact with the outsourced CPA office, the lawyer and audit firm; (6)writing reports for senior management, including reports on finances, staff performance, and annual review; (7) involvement in management discussions on policies and strategic development; (8) promoting staff development and training and carrying out staff appraisals, managing performance and disciplining staff; and (9)planning and holding BoG and Members Meeting for ISHI.

The Contracts Officer reports to the Office Manager and manages the contract activities of IODP-MI Tokyo office adhering to the policies and the budget guidelines provided by the senior management. The contract office is also responsible for preparing monthly finance expense report. The CO monitors documents and contracting activities to ensure compliance; responds to inquiries on all aspects of the contract; and directly supports the Office Manager in daily management of the office. The Contract Officer also takes care of compiling Quarterly Report and Annual Report of IODP-MI.

Assistants: assist the office functions in Tokyo and DC as shown in. [Figure IODP-MI-2](#).

## **4 Management and Administration**

### **4.1 Goals**

Plan, coordinate with IOs, SAS, Lead Agencies and other IODP related organizations, oversee, review, and report on IODP activities including the next phase of IODP.

### **4.2 Deliverables for FY2012**

#### **4.2.1 Annual Program Plan**

IODP-MI provides the Annual Program Plan (APP) as the Central Management Organization of IODP by working with IOs and the SAS for the approval of the Lead Agencies.

APP is the central document in IODP, and describes all the planned activities and costs in Science Operations Cost (SOC) and Platform Operations Cost (POC). IODP-MI has discussed and agreed with the IOs and Lead Agencies on the style and content of the information to be covered in each Annual Program Plan. In November 2006, IODP-MI and IOs developed the latest style of the APP, approved by the Lead Agencies in January 2007.

SOC activities are planned and described under seven Work Breakdown Elements (WBEs): Management and Administration (M&A), Technical Engineering & Science Support (TESS), Engineering Development, Core Curation, Data Management, Publications, and Outreach. Under each element, Goals are set and Deliverables are described in as common a way as possible among the IOs and IODP-MI.

#### **4.2.2 Quarterly and Annual Reports**

IODP-MI provides four quarterly reports to the Lead Agencies, which include financial reports, contractual activities, reports of SOC activities under the seven WBEs, and minutes of all the meetings of SAS Committees/Panels and IODP-MI Task Forces. IODP-MI also provides an annual report to the Lead Agencies, which includes the financial reports, contractual activities, and SOC activities of IODP-MI and the IOs for the whole year.

#### **4.2.3 Coordination**

IODP-MI coordinates with the IOs, PEP and SAS Panels, SIPCom, the Board of Governors, the Program Member Offices (PMOs), the funding agencies and various subcontractors.

"Coordination" is the major deliverable of Management and Administration of IODP-MI, and various Task Forces play a key function in this coordination.

##### **4.2.3.1 SAS Support**

The SAS is supported in its functions by IODP-MI. The chairs of the PEP and SIPCom receive travel support and a part-time salary; all other panel chairs receive an annual honorarium. All drilling proposals submitted to the program are received and handled by IODP-MI. Internal and external reviews of proposals are solicited, edited and provided by IODP-MI for the use of SAS panels, and scientific data in support of the drilling is stored in a site survey databank funded and overseen by IODP-MI. All SAS meetings are approved and coordinated by IODP-MI, and meeting materials, including proposal data and for the PEP and agenda books for SIPCom

are provided by IODP-MI. The IOs, funding agencies and national support programs liaise with the SAS on an "as-needed" basis.

The FY2011 APP comprises the following major deliverables by IODP-MI:

- SAS meetings as per preliminary schedule ([Table IODP-MI-3](#))
- PEP and SIPCom Support
- Part-time financial salary support and travel support for the SPC and SASEC chairs
- Annual honorarium for all other SAS chairs
- Meeting coordination and approval
- Support (with proposal reviews and data) to all science and site survey data evaluation meetings
- IODP-MI liaison support of meetings
- Minutes of SIPCom meetings, and assist minutes writing for PEP plenum sessions
- Provide proposal material for PEP meetings, and assist with minutes from plenum sessions
- Oversight, coordination and Web posting of all SAS material
- Oversight of Site Survey Data Bank (SSDB)
- Biannual solicitation of proposal submissions, and related proposal handling
- Maintenance and oversight of the Proposal Data Base
- Support of IODP scientific workshops
- Long-term thematic review (0)
- Assistance with long-term science planning and program renewal

SAS is headed by the Scientific Implementation and Policy Committee (SIPCom). SIPCom forms and populates a Proposal Evaluation Panel (PEP), which in turn, with approval by the executive body, forms the advisory panels needed to conduct their work. Oversight of SIPCom is carried out by the IODP-MI President. Support of SIPCom is carried out by the Vice President, assisted by the Science Management team (Science Director, Associate Science Manager, and SAS Coordinator).

Oversight and support of the PEP and various SAS panels by IODP-MI is carried out by the Science Director assisted by the Associate Science Manager, and SAS Coordinator.

Advice on scientific and programmatic matters related to SIPCom will be provided by the VP. IODP-MI also coordinates an annual meeting between IODP-MI, PMOs and IO liaisons. The IODP-MI VP and the Science Management team work closely with the SIPCom and PEP chairs to plan and oversee meeting agenda development, deliver timely and informative minutes, track action items, conflict of interest (COI) issues, membership rotations, and other SAS business. SAS meetings are attended by members of the science management team to provide advice on proposal handling, program policies and protocols, and interaction between IODP-MI and SAS. For PEP meetings, the Associate Science Manager/Coordinator coordinates the reviews and provides information on site survey data. The IODP Operations Coordinator supports SAS panels with information on operational and engineering issues.

Committees and Panels	Tentative Schedule
SCP #1	November 2011
PEP #1	November 2011
SIPCom #1	January 2012
STP #1 (TBD)	February 2012
PCP #2	May 2012
PEP #2 (TBD)	May 2012
SIPCom #2	June 2012
EPSP	As called

**Table IODP-MI- 3: Tentative SAS meeting schedule in FY2012**

A generic SAS meeting plan for FY2012 for the new SAS is shown in Table IODP-MI-3. It includes meetings by all SAS units in a schedule tailored to the annual cycle of overall program planning of expeditions, and associated technical and budget planning.

### **Expedition-based and long-term science review**

The expedition-based science review falls into two phases: An initial review to be included in the Preliminary Report and a later second phase conducted by SAS in conjunction with IODP-MI (Science Director). This second phase will be held well after the Expedition Report has been completed to more properly assess the long-term science impact from the expedition or a group of related expeditions. The co-chiefs' report to the SPC 18-20 months post expedition forms the basis of the second-phase science review.

Longer-term evaluation of the scientific impact of IODP drilling expeditions is conducted on a thematic basis (SASEC Consensus 0607-06). The first three thematic reviews were conducted in FY2007/08/09: Climate variability, Ocean crust structure, and Deep Biosphere and the Subseafloor Ocean (reports at <http://www.iodp.org/trc/>). No thematic review is planned for FY2011.

### **SAS Oversight**

In FY2012, IODP-MI will continue to work closely with the SAS to make sure that science planning for the remaining part of the program (FY12-13), as well as initial planning for the new program post 2013, in particular for extensive riser drilling programs.

### **Workshop**

With the new SAS and proposal process, the demand for WS will increase, in particular for WS aimed at producing full proposals. Similarly, it is envisaged that effective, long-term scheduling of platforms will require an improved mechanism to secure a critical mass of mature proposals in different oceans. Workshops with a regional inclination assist such a planning effort. The program will therefore accept three types of WS proposals:

- 1) Unsolicited or solicited proposal that will address scientific opportunities in a particular region, with or without specific scientific theme(s) in mind,

- 2) Unsolicited WS proposals for thematic WS that has potential to develop new scientific approaches,
- 3) Solicited (by PEP) WS proposals to develop a full drilling proposal.

Ad (1): The need for such regional WS may be significant. There is a growing concern about lack of a critical mass of proposals, making efficient scheduling difficult. Long range planning, defining (tentative?) ship tracks and regional WS may be a path forward to overcome this quite fundamental problem.

Ad (3): Solicited here implies that a pre-proposal has been submitted and favorably reviewed by PEP, with review comments of a nature that will make it natural to further develop the scientific rationale, technology, or group of proponents through a WS.

Budget guidelines:

- (1) Up to 30K USD from IODP
- (2) Up to 25K USD from IODP
- (3) Up to 15K USD from IODP

For FY12, a budget assuming two WS of type (1), two of type (2), and six of type (3) has been assumed. The latter is expected to cover around 50 percent of annual submissions of new proposals of high scientific quality.

### **Post-2013 Science Planning Activities**

IODP-MI recognizes that the grand scale of drilling into the mantle through the entire oceanic crust and the Moho discontinuity demands careful long-term planning involving all IODP entities. A project scoping group will be formed to assess all the parameters required to realize this target in the next 10-15 years.

#### **4.2.3.2 Operations**

##### **Platform Scheduling**

The Operations Task Force (OTF) oversees IODP platform scheduling. OTF's primary function is to formulate the most logistically, fiscally effective operational plans to meet the objectives set forth in IODP's 10-year science plan based on the reviews and the portfolio of proposals put forward by PEP for consideration of implementation. Task Force members include IODP-MI Science Director and Operations Manager, five SPC members, IO representatives, the chair of SIPCOM. Permanent observers are the platform providing funding agencies. Outside experts are invited on an as needed basis.

The scheduling strategy involves: (1) examining science plans for each proposal; (2) determining operational and environmental constraints; (3) developing a matrix that combines science priorities with operational and environmental constraints and risk, operational days at sea, and transits; and (4) adding fiscal reality to viable options. The Task Force meets approximately two times a year, and has considerable e-mail discussion between meetings. OTF works closely with SIPCOM to ensure that the scheduling option always represents highly ranked science.

Each summer, the Operations Task Force develops detailed scheduling options (i.e., specific dates of operation, port calls, transits, drilling options, etc.) for the fiscal year beginning ~16 months later and a conceptual science plan (i.e., which proposals will most likely be scheduled, but without specific dates, port calls, etc.) for the fiscal year beginning ~28 months later. This scheduling plan provides the IOs increased lead time to plan for long-term acquisitions and to properly budget for the expeditions. For example, during the summer of 2011, the OTF will develop a detailed schedule for FY2013 (the last year of the current IODP). OTF meeting reports are posted on the IODP website at <http://www.iodp.org/otf>.

##### **Project Scoping**

Some science programs require scoping to assess the state of readiness of the drilling plans, tool and engineering development, engineering site surveys, etc. Based upon input from SAS, OTF recommends to IODP-MI the level of scoping needed for any science program. Project Scoping Groups (PSG) are formed at the discretion of IODP-MI and normally are not constituted until programs are forwarded to OTF.

Each scoping group consists of the IODP-MI Operations Manager as head. This group includes several project proponents to provide the scientific leadership necessary to plan aspects of the project. This PSG also has formal liaisons from the IOs and SAS and utilizes outside expertise (e.g., engineers) as needed. The PSG regularly reports to the OTF on the state of readiness of the science program. PSG meeting reports/action items are posted on the IODP website at <http://www.iodp.org/project-scoping-groups>.

If after initial scoping, the project is placed on the IODP operational schedule by the OTF, IODP-MI may form a Project Management Team (PMT), which plans and coordinates the project through its operational cycle. Each PMT has a "core membership" of either the Operations Manager as the chair, one or two designated "Chief Project Scientists," Science Director, proposal proponents, IO representatives (engineers, staff scientists), SAS



representatives, E&O representation and outside engineers (as required). The PMT reports to the OTF on planning and implementation issues addressed by the team. PMT reports/action items are posted on the IODP website at <http://www.iodp.org/project-scoping-groups>.

The NanTroSEIZE PSG has now evolved into the NanTroSEIZE Project Management Team and is coordinating the NanTroSEIZE operations. Reports/action items of this PSG/PMT are on the IODP website at <http://www.iodp.org/project-scoping-groups>.

Additional scoping groups/project management teams may be initiated in FY2012, depending upon the operational schedule developed for FY2012-13 by OTF.

### **Expedition Assessment**

IODP-MI has a formal expedition review process to examine operational issues. The operational review is conducted by the IODP-MI Operations Review Task Force and is generally conducted two to six months post expedition, and may include multiple expeditions. Each Operations Review Task Force meeting consists of IODP-MI personnel (the Operations Manager and/or Operations Coordinator), the expedition co-chiefs, representatives of the operators, a few industry experts, and a few non-expedition scientists knowledgeable about the expedition objectives or goals. The Task Force review is based upon confidential reports submitted by the IO and expedition co-chief scientists. These operational reviews focus on "lessons learned" and "how do we do things better in the future?" Areas of discussion include pre-expedition planning, expedition drilling operations, communications between scientists and operators, roles and responsibilities of scientists and operators, general procedures and policies (e.g., curation, communications), laboratory operations, etc. Each of these operational reviews results in recommendations that are compiled into a short summary report, which is posted on the IODP website at <http://www.iodp.org/ortf>.

#### **4.2.3.3 Core Curation**

IODP-MI provides SOC funds for the operation and maintenance of three primary repositories; the Bremen Core Repository (BCR), the Gulf Coast Repository (GCR) and the Kochi Core Center (KCC).

IODP-MI is not involved in any direct repository operations, but provides oversight of policy and protocols for repository operations. To assist with this oversight function, IODP-MI utilizes a Task Force (Curatorial Advisory Board, CAB), which consists of the Science Director) and the IODP-MI Data and Publications Manager, and five members of the scientific community nominated by the SAS. The community members of the Task Force members represent a variety of scientific disciplines.

The Curatorial Task Force (known as the Curatorial Advisory Board, CAB) has several main roles including: (1) acting as an appeals board vested with the authority to make final decisions regarding sample distribution if and when they arise among any combination of the sample requesters, an IODP Curator at the repository of interest, or the Sample Allocation Committee (SAC); (2) reviewing and approving requests to sample the permanent archive and requests for loans of core material for outreach and education; and (3) advising IODP-MI (in conjunction with the repository curators) on policy/protocols for repository operations.



#### **4.2.4 Contract Services**

In monitoring subcontractor performance, IODP-MI is primarily interested in progress toward successful completion of the specified requirements of the Annual Program Plan (APP) and the financial status of each subcontract.

Subcontract monitoring is done to ensure:

- compliance with relevant federal government and NSF statutes, regulations, policies, and guidelines;
- compliance with the terms and conditions of the subcontract;
- responsible oversight of awarded funds;
- efficient implementation of APP objectives, tasks, time-lines, budgets, and schedules;
- identification and resolution of issues and problems that may impede APP or subcontract performance; and
- implementation of subcontract change orders or modifications as approved by IODP-MI.

The IODP-MI Director of Finance and Administration (DFA) primarily carries out the programmatic and financial monitoring aspects of the NSF prime contract and the resulting subcontracts awarded by IODP-MI. According to the terms of all major IODP-MI sub-awards -- which includes the IOs-- subcontractors are required to submit periodic progress reports that summarize both project and fiscal activity in order to aid the CMO in carrying out its responsibilities.

The DFA is responsible for ensuring that subcontractors submit timely progress and financial status reports. And closely monitors the fiscal aspects of all IODP-MI subcontracts.

The DFA is the gatekeeper of all progress reports, financial reports, subcontract modifications, and subcontractor invoices. Reports, invoices, and supporting documentation are reviewed for programmatic and fiscal compliance, sent forward to the relevant IODP-MI program/project managers, saved to the master files (both electronic and hard copies), and ultimately summarized in IODP-MI's quarterly reports to the Lead Agencies. The DFA consults with the IODP-MI program/project manager(s) on any actionable issues raised by a subcontractor.

Monitoring information is collected using such techniques as telephone calls, reviewing A-133 audit reports annually, site visits, and desk reviews (to ensure that the contract files are complete and the subcontractor is in compliance).

During the course of performance of every major subcontract (those recipients holding an IODP-MI subcontract directly pertinent to the APP process), IODP-MI reserves the right to make site visits to inspect or review the progress of work or the management control systems of the subcontractor or its lower-tier subcontractors.

The DFA conducts occasional site visits to major IODP-MI subcontractors including the IOs; major lower-tier IO subcontractors; the IODP-MI Tokyo office; the Bremen Core Repository, and the managing organizations of the Site Survey Data Bank and SEDIS data management projects, etc.

The purpose of site visits is to:

- monitor a subcontractor's administrative and financial capabilities;

- perform onsite programmatic and/or financial reviews;
- discuss any issues of concern and provide technical assistance that may be needed;
- tour the subcontracting facility; and
- receive a briefing on the status of the deliverables required under the APP.

Site visits assist IODP-MI in evaluating the success of the program and in identifying potential future modifications. Subcontractors receive at least three weeks advance notice prior to a site visit from the IODP-MI DFA.

Each subcontractor is expected to provide reasonable facilities and assistance for the safety and convenience of IODP-MI in the performance of their duties. Such access includes the right to inspect the subcontractor's financial accounts or records that pertain to the subcontract.

Once a visit is completed, the DFA will prepare a site visit report for the IODP-MI President.

For FY2012, site visits are tentatively planned for the Japanese IO (JAMSTEC), IODP-MI Tokyo, and USIO, Texas A&M University (TAMU).

Although unlikely, any discovery of subcontractor or APP noncompliance could result in a stop work order or temporary suspension of payments, depending upon the nature of the finding(s). The DFA would state any and all deficiencies to the subcontractor in the form of a corrective action letter and allow reasonable time for the recipient to respond to the deficiencies. If necessary, IODP-MI would conduct a follow-up visit in order to make further compliance observations and to provide technical assistance and training.

At the end of a subcontractor's period of performance, the DFA will close out the subcontract. Closing out subcontracts is the final step in a process by which IODP-MI ensures that all required deliverables are complete and all reporting has been submitted, reviewed, and accepted. IODP-MI also performs a final reconciliation of the federal funds passed through to the recipient.

## 4.3 Budget

### 4.3.1 Budget Table

Management & Administration	IODP-MI	ISHI	Total
Salaries & Fringes	899,750	874,853	\$ 1,774,603
Travel	400,000	14,118	\$ 414,118
Supplies	5,000	42,353	\$ 47,353
Shipping	14,000	14,118	\$ 28,118
Communication	36,250	42,353	\$ 78,603
Contractual Services	88,200	48,000	\$ 136,200
Equipment	5,000	21,176	\$ 26,176
<b>Other Direct Costs</b>	799,520	354,824	\$ 1,154,344
<b>Total Direct Cost</b>	<b>2,247,720</b>	<b>1,411,795</b>	<b>\$ 3,659,515</b>
<b>Consumption tax (5%)</b>	-	70,590	\$ 70,590
<b>Total</b>	<b>2,247,720</b>	<b>\$1,482,385</b>	<b>\$ 3,730,105</b>

Table IODP-MI- 4: Management & Administration Budget for FY2012

### 4.3.2 Justification

**Salaries and Fringes** – Include an anticipated cost-of-living allowance and estimated fringe benefits rate for IODP-MI and ISHI M&A staff.

**Travel** – Includes all domestic and foreign travel for the IODP-MI and ISHI M&A staff, the SPC and SASEC chairs, multiple task forces and work groups, Project Management Teams, Board of Governors and Executive Committee meetings.

**Supplies** – Office supplies and expendables.

**Shipping** – Includes costs for regular postage, overnight deliveries and bulk mailings.

**Communication** – includes inter-office (Tokyo-DC) communication charges.

**Contractual Services** – Include Contracts Officer position (currently a contractor).

**Other Direct Costs** –

**IODP-MI** (\$799,520) - Includes association dues, meeting expenses, compensation for SIPCom and PEP Chairs, honoraria for Panel Chairs and Specialty Coordinators. Includes supporting scoping groups. Covers general audit, legal and administration service fees and corporate licenses and insurance, DC office and equipment rental and printing, software, repairs and bank fees.

**ISHI Subcontract** (\$354,824) - includes Tokyo office rental and equipment lease. Covers general audit, legal and administration service fees and corporate licenses and insurance. It also includes relocation and recruiting fee, education and back transfer fee.

## 5 Engineering Development

### 5.1 Goals

IODP-MI has limited staff resources in the area of Engineering Development and therefore outsources most implementation of engineering related development and all IO-related science support. IODP-MI's primary role in the Engineering Development process is to facilitate acquisition of technology needed for IODP to meet the objectives described in the Initial Science Plan and to oversee the contracts that are implemented to develop the required technology. IODP-MI will utilize the SAS-derived IODP Technology Roadmap as the primary guide for the acquisition this technology.

In addition to the projects funded by Science Operating Costs, IODP-MI Engineering project oversight has extended to Platform Operating Costs (POC) projects from FY2010 as a service to the funding agencies (when requested). The goal of this additional service is to provide uniform review and oversight to all areas of engineering within the Integrated Ocean Drilling Program. IODP-MI will not have any fiscal authority over POC-funded engineering projects, but will only offer advice to funding agencies for their use in prioritizing and monitoring POC-funded projects

### 5.2 Deliverables in FY2012

IODP-MI will manage new and on-going engineering projects to ensure their successful completion using internal and external oversight resources. IODP-MI utilizes the programmatic, high-level advice from the Science Advisory Structure to complete broad reviews of projects. To implement this advice from SAS and to conduct detailed, low level engineering reviews of projects and initiatives, IODP-MI may assign external reviewer. The external reviewer will be industry and academic experts possessing experience in areas of specific technology of interest to the program.

Approaching to the end of the current IODP, IODP-MI will freeze reception of unsolicited proposals and concentrate to complete on-going projects. There will be a study and an engineering project in FY2012.

IODP-MI will continue its initiative to quantify coring and to identify the factors controlling the quantity of collected core.

IODP-MI will be actively managing one new engineering project; wireline hydraulic testing and borehole imaging tool for stress measurement.

IODP-MI will complete two engineering development projects' sea tests/trials with IOs' support; SCIMPI and MDHDS.

#### 5.2.1 IODP-MI Funded Project

IODP-MI will be actively managing two specific engineering projects in FY2011. These projects are listed below

##### 5.2.1.1 Coring Study - \$25,000

IODP-MI personnel initiated the first phase of a study in FY2008 to quantitatively evaluate coring results in an effort to identify, and ultimately remediate, factors that affect the quantity

and quality of recovered core. IODP-MI personnel coordinated case studies to help identify factors controlling the quantity and quality of core collected by IODP. IODP-MI will conclude the study with consultation of expert in FY2012 and generate the final report and information providing web site.

**5.2.1.2 Wireline hydraulic testing and borehole imaging tool for stress measurement - \$500,000 (total \$700,000 for two years)**

A strong demand exists in the IODP community for in situ measurements of pore pressures and stresses at depth close to seismogenic zones. Yet, only limited experience with this respect has been obtained during DSDP/ODP/IODP, and the absolute magnitude of stresses has not been measured due to technical and theoretical difficulties. But these data are required for reliable estimates of fault failure potential.

The tool is composed of downhole pumping system, packers and sensors for fracture imaging, its outside diameter will be small enough to fit multiple platforms needs (TDCS for Chikyu, JR etc). Development will be conducted by two institutes (JAMTEC, Japan and CNRS-IPGS, France) with close collaboration, and joint testing at the last stage of the development. A feasibility study and preliminary engineering design has been completed by each institute.

Based on the result of FY10 EDP engineering development proposal evaluation, and additional feasibility study conducted in FY11, IODP-MI will start detailed design, tool fabrication, system integrate test and sea trial.

## 5.3 Budget

### 5.3.1 Budget Table

Engineering Development	IODP-MI	ISHI	Total
Salaries & Fringe	-		\$ -
Travel	20,000	-	\$ 20,000
Supplies	-	-	\$ -
Shipping	-	-	\$ -
Communication	-	-	\$ -
Contractual Services	525,000	-	\$ 525,000
Equipment	-	-	\$ -
Other Direct Costs	-	-	\$ -
<b>Total Direct Cost</b>	545,000	-	\$ 545,000
<b>5% Consumption Tax</b>		-	\$ -
<b>Total</b>	<b>545,000</b>	<b>0</b>	<b>\$ 545,000</b>

Table IODP-MI- 5: Engineering Development Budget for FY2012

### 5.3.2 Justification

**Travel** – Travel costs for engineering development personnel required to attend science advisory structure panel meetings, contractor oversight and workshops as needed.

**Contractual Services** – IODP-MI is requesting \$525,000 for subcontracts to complete two projects above. \$25,000 is requested to retain an engineering /drilling consultant to conclude the Core Quality and Quantity Study. And \$500,000 is requested to conduct engineering development for wireline hydraulic test and borehole imaging tool for stress measurement.

## **6 Data Management**

### **6.1 Goals**

The IODP-MI is responsible for maintaining Program-wide data systems and for providing access to integrated data from IODP sources. In order to achieve this goal, IODP-MI manages internal resources, coordinates with IOs on post-moratorium data management activities, and defines and oversees subcontracts in the area of data management. The major Program-wide data systems cover the areas of 1) site characterization and site survey information, 2) scientific drilling proposals, 3) sample materials inventories and requests management, and 4) access to integrated IODP and legacy Program data.

### **6.2 Deliverables in FY2012**

In FY2012 IODP-MI data management activities include planning for and implementation of a permanent accessible archive of IODP data, operation and maintenance of the Scientific Earth Drilling Information System (SEDIS), operation and maintenance of the Sample Materials Curation Management System (SMCS), operation and maintenance of the Site Survey Data Bank (SSDB), operation and maintenance of the Proposal Database (PDB). IODP-MI also hosts and maintains other Program-wide data systems such as the IODP drill sites KML database, the Taxonomic Names List database, the IODP user registry, DOI registration applications, and internal databases and applications. IODP data management team also coordinates closely with the Outreach on operation and management of IODP.org website, as well as coordinating with Science Support team, Operations and Engineering development team and other WBE managers on technology related activities.

The IODP-MI Data and Publications Manager, assisted by an Associate Data and Information Manager, is responsible for overseeing and coordinating IODP-MI and IOs science operations data management activities. They also oversee all IODP-MI contracts with non-IO entities. IODP-MI is assisted in the development of specifications for IODP data systems and subcontracts by the Data Management Coordination Group, and if needed, by a data management task force. The IODP-MI Data and Publications Manager works jointly with the IODP-MI Contracts Officer to contractually oversee all subcontracts in this field.

Since the beginning of calendar year 2005, IODP-MI has worked closely with the IOs in order to establish a strategy for a future data portal for IODP providing a point of access for locating and extracting drilling related data from the distributed IODP source systems– the Scientific Earth Drilling Information Service (SEDIS). SEDIS consists of a searchable metadata catalogue for scientific data, a searchable publications catalogue linking IODP publications with related data sets, and services for 3<sup>rd</sup> party software tools to access IODP data (including core measurements data, borehole logging data, digital images, etc.) via web services to facilitate visualization and analysis of the data. In order to improve performance on queries to the distributed data systems, a cache of the core measurements has been developed to serve as the backend to the query interface. The SEDIS data cache approach was presented at the 2009 DMCG meeting and agreed upon by IOs. Data retrieved from the SEDIS data cache will always be presented with a DOI linking integrated data back to source data systems at the record level.

Controlled vocabularies defining data elements used in IOs and IODP-MI data sets have been created to increase the consistency and interoperability of data delivered via the integrated data portal, and the maintenance and updating of these controlled vocabularies is an ongoing effort of IODP-MI. In the second half of FY2011 IODP-MI will work with IOs and the IODP community to assess the need for additional functionality at the integrated data portal and may propose to make targeted development priorities in SEDIS during FY2013 to ensure that the permanent IODP archive leverages the functionality for data search, retrieval, and citability that exist within the SEDIS system.

IODP data management activities are discussed and coordinated through the Data Management Coordination Group (DMCG) chaired by IODP-MI and populated with IO data managers and data system developers active in the IODP community. Software application developers are regularly invited to participate in DMCG meetings to increase the synergies between IODP data dissemination work and the IODP analytical tools development community. Two meetings of the DMCG are planned for FY2012. A major topic of DMCG discussion in FY2012 will be planning for implementation of the permanent archives of IODP data to ensure that IODP-MI and all IOs understand the roles, responsibilities and processes for achieving a successful permanent archive of Program data.

The Sample Materials Curation System (SMCS) consists of two components: a Sample Data Request Management System (SDRM) and the Central Inventory (CI) of IODP and legacy Program sample materials. The SDRM is in version 2 implementation and hosting, maintenance and operation of the system will be included in the FY2012 budget. The CI system is also in version 2, having been integrated with the SDRM to allow sample requesters to view available materials at all repositories while considering sample requests. Hosting, maintenance and operation of CI will be included in the FY20s to 12 budget. The Central Inventory will be an important component of the IODP legacy systems because it will provide a record of all IODP/ODP/DSDP core and sample materials in the Program's holdings distributed among the three IODP Core Repositories. Likewise, the SDRM v2 will enable IODP publication obligations to be monitored in the post-2013 time period.

The IODP proposal database (PDB) is operated, hosted and maintained by IODP-MI. The PDB was upgraded to version 2 in FY2011 and is set to support the FY2012-13 drilling proposals and SAS review process, as well to serve the post-2013 scientific ocean drilling program. Migration of proposals from IODP to the post-2013 IODP will be supported by the PDB v2 but will entail a significant effort with planning to begin in FY2011. Hosting, maintenance and operation of the PDB will be included in the FY2012 budget, with additional funding included to plan the migration of highest priority proposals from the current IODP to the new Program.

The Site Survey Databank (SSDB) is hosted and operated by Scripps Institution of Oceanography under contract from IODP-MI. The SSDB contract includes maintenance of the system, QA/QC of uploaded files, support to SAS meetings and minor developments and enhancements to the system. The SSDB-in-a-box system operated by IODP-MI is used to support SSP and other SAS meetings with an on-site mirror of the production SSDB system. Hosting, maintenance and operation of the SSDB will be included in the FY2012 budget. The requirements for an SSDB system for post-2013 will be evaluated in FY2012 and a plan developed for implementation in FY2013.



IODP terminology standardization continues to be an active area for IODP-MI, involving both data management and publications aspects. During FY2011, IODP-MI took the lead in updating and improving descriptive information for the IODP Depth Scale Terminology document. Other terminology standardization efforts included continued development and enhancements to the Taxonomic Names List database and maintenance of a system for documenting lithology classifications will be undertaken in FY2012. The standardized vocabularies, such as taxonomic names lists, will require IO and effort to implement on their respective database systems, and IOs have agreed via DMCG discussions to implement standardized vocabulary in their systems when the lists are finalized and processes for updating the lists are in place. Meanwhile the standardized terminology benefits IODP community by serving as controlled vocabulary (and synonyms) in SEDIS, SSDB, PDB v2, and other program-wide data systems, as well as being available to researchers and interdisciplinary communities to increase i

The planning for and implementation of accessible permanent archives for IODP data will be undertaken in FY2012. There will be at least two permanent archives of IODP data, with one located in the US and one located at an international scientific data center. If funding permits, permanent archives will be established in the U.S., Japan and Europe. The FY2012 budget includes funds to plan the permanent archives and to establish the archives and process for loading IODP data following standards-compliant, open-access protocols. The permanent archives will be fully operationalized in FY2013, with mechanisms established for loading FY2013 Expedition data to the archives in subsequent fiscal years. IODP-MI will undertake discussions with World Data System to identify suitable World Data centers to serve as hosts for the IODP archives. Given that IODP-MI has rights to the entire SEDIS code base and the fact that SEDIS has been developed using entirely open-source software, the approach to deploying archives is essentially that of re-deploying SEDIS on at World Data Center hosts and configuring the system appropriately to operate at the hosting environment. The archives will also include IODP documents such as Annual Program Plans, Annual Reports, and SAS meeting documents, made searchable and hosted on open-source document management software. IODP-MI is engaged in discussions with USIO to make the IODP documents archives federated and cross-searchable with the USIO-hosted ODP and DSDP document archive system.

### 6.3 Budget

The budget for Data Management includes funding for operation, hosting and maintenance of IODP-MI applications, including SSDB, PDB, SMCS, SEDIS, IODP drill sites KML database and other data management systems. FY2012 activities are geared toward maintenance of data systems to support the current IODP operations, the development of permanent archives of IODP data and information, and development of systems critical for establishment of a successful post-2013 scientific drilling program. In FY2012, IODP-MI will initiate establishment of permanent archives for IODP data, including core measurements and borehole logging, SSDB data, IODP core repositories curatorial data, IODP proposals, and IODP publications.

#### 6.3.1 Budget Table

Data Management	IODP-MI	ISHI	Total
Salary and Fringes	-	203,259	\$ 203,259
Travel	22,500	-	\$ 22,500
Supplies	-	-	\$ -
Shipping	-	-	\$ -
Communication	-	-	\$ -
Contractual Services	394,000	-	\$ 394,000
Equipment	-	-	\$ -
Other Direct Costs (personnel in Office Subcontract)	-	-	\$ -
<b>Total Direct Cost</b>	416,500	203,259	\$ 619,759
<b>Consumption Tax (5%)</b>		10,163	\$ 10,163
<b>Total</b>	<b>\$ 416,500</b>	<b>\$ 213,422</b>	<b>\$ 629,922</b>

Table IODP-MI- 6: Data Management Budget for FY2012

#### 6.3.2 Justification

**Salary and Fringes** – Salaries for IODP-MI Data Management personnel.

**Travel** – Travel costs for IODP-MI staff to DMCG meetings, IO data management coordination site visits, and international conferences.

**Contractual Services** – The Data Management budget for FY2012 will be mainly used for the operation and maintenance of SSDB (\$280,000), SMCS, PDB, SEDIS, IODP holes KML database, Taxonomic Names List database and IODP-MI data systems. Also included in the Data management budget are an annual fee for digital object identifiers (DOI) and access to the American Geological Institute (AGI) citation system for IODP-related publications. Some consultant work for a variety of data management activities, such as integration of TNL with IOs data systems, is also expected in FY2012

## 7 Publications

### 7.1 Goals

IODP-MI is the publisher of IODP Publications and oversees editing, production and distribution of IODP Publications. The production and editing of IODP reports (Scientific Prospectus and Preliminary Reports) and the Proceedings of the IODP is contracted to the Implementing Organizations, with USIO-TAMU Publications Services Group serving a major role in production, editing and distribution of Scientific Prospectuses, Preliminary Reports and Proceedings. IODP-MI works closely with the IOs on coordination of all aspects IODP publications. The IODP-MI Data and Publications Manager is responsible for technical aspects of IODP publications assisted by the Publications Coordinator. The IODP-MI VP directly oversees all aspects of program publications policies. IODP-MI is responsible for the production and distribution of the program journal *Scientific Drilling* in collaboration with the International Continental Drilling Program (ICDP). The VP is Editor-in-Chief of *Scientific Drilling*, and the Data and Publications Manager is an Editor of the journal as well. ICDP also provides one Editor. Scientific community members from IODP and ICDP populate an editorial review board assisting the editors of *Scientific Drilling* and provide peer-review of scientific reports. The Data and Publications Manager is responsible for overseeing the production of the journal. The IODP-MI Publications Coordinator manages the day-to-day production of the journal.

### 7.2 Deliverables in FY2012

The IO publications staff and IODP-MI personnel coordinate the IODP publications activities. The IODP-MI will coordinate with IOs to produce the Scientific Prospectuses, Preliminary Reports and Proceedings Volumes for FY2012 and FY2013 Expeditions. IODP-MI serves as publishers for these publications and has overall responsibility for their timely production. Each IO has contractual obligation to develop the required IODP publications for their Expeditions. The Scientific Prospectuses, Preliminary Reports and Proceedings Volumes are edited, produced and distributed by USIO-TAMU under contract with IODP-MI. IODP-MI reviews and approves release of all IODP publications.

Other FY2012 Publications tasks include coordinating all inter-IO publication activities, addressing publications policies and their implementation, addressing issues of program publications' impact and legacy, maintaining a searchable online catalogue of IODP-related publications, promoting collaboration between the publication staff at the IOs, and reviewing all IODP publications in draft. In FY2012, IODP-MI will coordinate a review and updating of IODP publications policies and procedures related to implementation of IODP guidelines and terminology, publications obligations for recipients of IODP samples, and inclusion of data sets from post-expedition publications in IODP-MI data systems. Another policy issue to be addressed in FY2012 is moratorium policy for long-term observatories in IODP holes.

A major IODP-MI publications deliverable in FY2012 will be plan to establish permanent archives of IODP publications. The initial scoping of this effort was begun in FY2011. One approach under consideration is to utilize online library facilities associated with universities or research institutions to maintain an accessible and searchable catalogue of IODP

publications. The FY2012 budget will include funds to plan for and establish the permanent archives of IODP publications. The permanent archives will be fully operational during FY2013, with mechanisms established for loading FY2012-2013 Expedition publications to the archives in subsequent fiscal years.

Two issues of *Scientific Drilling* are planned for FY2012. Scientific reports will be peer-reviewed.

### 7.3 Budget

The budget includes the IODP portion of the production and distribution costs. Production costs include copy editing and printing for 5,500 copies (net of ICDP's share) per issue.

#### 7.3.1 Budget Table

Publication	IODP-MI	ISHI	Total
Salary and Fringes	-	136,110	\$ 136,110
Travel	6,000	-	\$ 6,000
Supplies	3,500		\$ 3,500
Shipping	23,500		\$ 23,500
Communication	-		\$ -
Contractual Services	72,500		\$ 72,500
Equipment	-		\$ -
Other Direct Costs	-		\$ -
<b>Total Direct Cost</b>	105,500	136,110	\$ 241,610
<b>Consumption Tax (5%)</b>	-	6,806	\$ 6,806
<b>Total</b>	<b>\$ 105,500</b>	<b>\$ 142,916</b>	<b>\$ 248,416</b>

Table IODP-MI- 7: Publication Budget for FY2012

#### 7.3.2 Justification

**Salary and Fringes** – Salaries for IODP-MI Publications personnel.

**Travel** – Travel costs for publication staff.

**Shipping** – Shipping cost for *Scientific Drilling* and distribution of new Science Plan.

**Contractual Services** – Services for publishing *Scientific Drilling* (IODP contribution - excluding ICDP support) and for printing of new Science Plan.

**Other Direct Costs** – Salaries and fringe benefits of ISHI subcontract staff providing Publications support.

## **8 Outreach**

### **8.1 Goals**

IODP-MI outreach is responsible for coordinating all the outreach activities for the IODP and raising visibility of the program and the vision of the New Science Plan. IODP-MI outreach works collaboratively with PMOs and IOs to increase awareness of the mission, value and importance of scientific ocean drilling including expeditions and scientific researches particularly to the media, stakeholders and the general public. IODP-MI outreach aims to maintain existing audiences and attract new audiences as well as to provide program update and information to the science community, Lead Agencies, PMOs and IOs. IODP-MI outreach develops a variety of forms including web communications, active presence at international conferences, and production of informational and multimedia materials highlighting program achievements.

### **8.2 Deliverables:**

#### **Media and Public Relations**

In FY12, IODP-MI outreach activities include continuous efforts to attract media attention and increase general public awareness. The main messages to send are 1) scientific objectives and achievement; 2) IODP's value as a global leader in the collection of Earth systems data; 3) IODP's international cooperation, 4) individual scientists participating in IODP research activities; 5) how IODP contributes information globally important environmental discussions; 6) vision and science plan in the New Science Plan.

Press releases about the program highlights and achievements continue to be issued on time. Outreach continues to coordinate to plan and organize press conferences such as during AGU, EGU and some other occasions to promote current program and new program. The new and traditional communication channels are applied to target these focused groups.

#### **Web Communication**

IODP-MI continues to provide daily management, maintenance and support for IODP.org website and other websites in the IODP.org domain. These include posting news highlight, updating expedition schedules and providing events schedule creating additional pages if necessary. The project will implement a new content management system (CMS) and a re-designated website at IODP.org for outreach to scientists, funding agencies, educators, students, the media and general public. The goal of this project is to present a compelling introduction to the general public use or first time visitor, while also providing quick access to the more program-centric policy documents, expedition information and other pages used by established members of the scientific ocean drilling community.

#### **IODP Achievements and Informational Materials**

IODP-MI coordinates developing, releasing and distributing of printing and multimedia materials on the highlights and achievements of the IODP. These will be presented in various formats, brochures, leaflets, flyers, posters, videos and on line, for example at international conferences, on the IODP.org website and educational and port call events to be held by IOs.

### **International Conferences, Town Hall Meetings and Press Conferences**

IODP-MI plans and coordinates consistent, targeted presentation of high-profile internationally important scientific conferences, including AGU, EGU. The activities include exhibitions at program booths, Town Hall Meetings and media conferences that report on scientific results and future plan.

In FY12, IODP-MI will establish booths at AGU, EGU and IGC, and a few additional exhibitions. IODP Town Hall Meetings and press conferences will also be planned and coordinated in selected conferences or independently in order to providing program update to the community and promoting the program to the society.

## 8.3 Budget

### 8.3.1 Budget Table

Outreach	IODP-MI	ISHI	Total
Salary and Fringes	-	187,797	\$ 187,797
Travel	40,000		\$ 40,000
Supplies	-	-	\$ -
Shipping	-	25,000	\$ 25,000
Communication	-	-	\$ -
Contractual Services	-	353,000	\$ 353,000
Equipment	-	-	\$ -
Other Direct Costs	-	4,000	\$ 4,000
<b>Total Direct Cost</b>	40,000	569,797	\$ 609,797
<b>Consumption Tax (5%)</b>	-	28,490	\$ 28,490
<b>Total</b>	<b>\$ 40,000</b>	<b>\$ 598,287</b>	<b>\$ 638,287</b>

Table IODP-MI- 8: Outreach Budget for FY2012

### 8.3.2 Justification

The IODP-MI outreach budget focuses on supporting the IOs in their outreach efforts, and providing a central online clearinghouse of information for IODP. Resources are targeted to A) building lively exhibit booths, Town Hall Meeting and press conferences at key international science conferences (primarily AGU, EGU and IGC) and other conferences to showcase current expeditions/achievement and nourish, strengthen, and grow the scientific ocean drilling community; (B) maintaining an effective online presence that features informational and multimedia materials and use of new media tools; (C) development of informational materials highlighting the achievements of IODP and the societal impact of IODP research activities in important global environmental issues.

**Salary and Fringes** – Salaries for IODP-MI Outreach personnel.

**Travel** – Travel costs for staff to one Task Force Meeting per year and to conferences where booths must be staffed.

**Shipping** – Distribution of IODP materials and supplies for international conference booths, and to IOs and PMOs for outreach activities.

**Contractual Services** – Website hosting, maintenance and support (\$65,000); Multimedia production and library maintenance (\$70,000); Exhibition booths at AGU, EGU and IGC, and others (\$108,000); Town Hall Meeting at AGU (\$40,000); News monitoring, distribution and informational resources (\$10,000); Printing and graphic design (\$60,000)

**Other Direct Costs** – Salaries and Fringes of ISHI Outreach Subcontractors.



# IODP Annual Program Plan

FY2012

[Appendix B](#)



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

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

**FY12 ANNUAL PROGRAM PLAN**  
**to IODP-MI**

**For Time Period**  
**1 October 2011 to 30 September 2012**

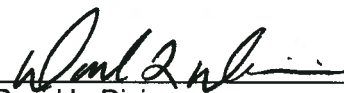
**Amount Proposed FY12: \$71,147,513 (SOC and POC)**  
**Amount Proposed FY12: \$4,196,305 (SOC)**  
**Amount Proposed FY12: \$66,951,209 (POC)**



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

**4 August 2011**

**Respectfully Submitted to:**  
**IODP Management International, Inc.**

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



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# 1. INTRODUCTION

## 1.1. ANNUAL PROGRAM PLAN OVERVIEW

The USIO FY12 Annual Program Plan to Integrated Ocean Drilling Program Management International, Inc. (IODP-MI) defines the U.S. Implementing Organization (USIO) scope of work for Integrated Ocean Drilling Program (IODP) activities and deliverables for the FY12 fiscal year. It is based on (1) the current mission forecast provided on 29 April 2011 for the USIO by the U.S. National Science Foundation (NSF), (2) the USIO operations schedule that was approved by the Operations Task Force (OTF) and Science Planning Committee in August 2010, and (3) the 18 and 19 June 2011 OTF and 23 June 2011 IODP Council approval for platform operating costs for an additional expedition to be supported through commingled funds from IODP-MI. 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.<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 FY12 Annual Program Plan to IODP-MI was developed in consultation with the USIO subcontractors for inclusion in the IODP FY12 Annual Program Plan.

IODP-MI, with input from IODP funding agencies, provided guidance and instruction to the USIO on preparation of the USIO contribution to the IODP FY12 Annual Program Plan. The USIO FY12 Annual Program Plan to IODP-MI 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. Also included are the required budgets that incorporate funding allocations from IODP-MI for science operations and funding allocations from NSF for platform operations. These budget requests relate to the contractual relationships and fiscal reporting structure of the USIO as presented in quarterly reports delivered by the USIO.

In addition to the institutional summary provided in the Executive Summary, USIO tasks and budgets specific to IODP-MI-supported activities are addressed in Sections 5–12 of this Annual Program Plan. Section 2 provides budget summary tables, Section 3 describes the organizational structure of the USIO as it relates to all USIO activities, and Section 4 describes scheduled expedition operations.

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

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

IODP. In addition, LDEO has contracted with Schlumberger Technology Corporation for provision of downhole logging equipment and engineering support.

## **1.2. USIO FY12 ACTIVITIES**

### **1.2.1. Summary of FY12 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 also carry out the postexpedition activities related to 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 DEFINITIONS**

### **1.3.1. FY12 USIO Budget Assumptions**

The USIO has provided our best-effort estimate of FY12 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” chapter.

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 FY12 fuel costs; however, market conditions are subject to fluctuations that may result in a need for supplemental funding during the period of operations.

### **1.3.2. USIO Budget Structure**

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

The USIO cost breakdown for FY12 is a request to IODP-MI for \$4,196,305 in SOC expenses and a request to NSF for \$66,951,209 in POC expenses for all other USIO operations (submitted in the FY12 Annual Program Plan to NSF).

## 2. FY12 USIO BUDGET SUMMARY TABLES

### 2.1. INTRODUCTION

The budget summaries and detailed budgets in this section describe the overall USIO FY12 SOC and POC requests to IODP-MI and NSF. This information is given to provide a framework for interpreting fiscal data in quarterly reports delivered by the USIO.

In Section 2.2. FY12 USIO SOC/POC WBE Budget Summary, the line-item total requested for each work breakdown element (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 SOC and POC. 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. FY12 USIO SOC/POC WBE Budget Detail provides an integrated view of all the budget requests detailed in the WBE sections of the IODP-USIO FY12 Annual Program Plan to IODP-MI. The detailed budget justification for these requests can be found in Sections 5–12 of this Annual Program Plan.

Section 2.4. USIO Budget Three-Year View provides a comparison of FY12 budget requests to FY10 and FY11 costs, showing costs broken down by WBE and expense category.

### 2.2. FY12 USIO SOC/POC WBE BUDGET SUMMARY

Element	SOC	POC	Total
Management and Administration	657,926	3,961,293	4,619,219
Technical, Engineering, and Science Support	427,435	60,470,125	60,897,560
Engineering Development	57,999	99,750	157,749
Core Curation	391,862	124,288	516,150
Data Management	1,058,768	2,182,956	3,241,724
Publications	1,503,852	112,797	1,616,649
Education	0	0	0
Outreach	98,463	0	98,463
<b>Total FY12 USIO SOC/POC Budget</b>	<b>\$4,196,305</b>	<b>\$66,951,209</b>	<b>\$71,147,513</b>
<b>Total Direct Costs</b>	3,673,263	65,348,970	69,022,233
<b>Indirect Costs and Administrative Fees</b>	523,042	1,602,239	2,125,280
<b>Grant Total FY12 USIO SOC/POC Budget</b>	<b>\$4,196,305</b>	<b>\$66,951,209</b>	<b>\$71,147,513</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.



## 2.3. FY12 USIO SOC/POC WBE BUDGET DETAIL

Element/Expense Category	SOC	POC	Total
<b>Management and Administration</b>			
Salaries and Fringes	361,573	2,615,164	2,976,737
Travel	32,410	229,009	261,419
Supplies	6,450	39,100	45,550
Shipping	2,221	8,279	10,500
Communication	10,890	45,990	56,880
Contractual Services	0	30,000	30,000
Equipment	0	0	0
Other Direct Costs	6,885	119,825	126,710
<b>Total Direct Costs</b>	420,429	3,087,367	3,507,796
Modified Total Direct Costs (if applicable)	74,340	483,616	557,956
<b>Indirect Costs or Administrative Fees</b>	237,497	873,926	1,111,423
<b>Total Management and Administration</b>	<b>\$657,926</b>	<b>\$3,961,293</b>	<b>\$4,619,219</b>
<b>Technical, Engineering, and Science Support</b>			
Salaries and Fringes	226,082	6,953,729	7,179,811
Travel	47,603	1,147,361	1,194,964
Supplies	2,000	1,897,450	1,899,450
Shipping	4,397	1,098,887	1,103,284
Communication	1,960	322,450	324,410
Contractual Services	0	3,927,042	3,927,042
Equipment	0	1,717,680	1,717,680
Other Direct Costs	2,350	42,933,655	42,936,005
Day Rate	0	30,185,638	30,185,638
Fuel and Lubricants	0	6,887,250	6,887,250
Per Diem	0	500,510	500,510
Port Calls	0	1,273,000	1,273,000
Insurance	0	1,791,552	1,791,552
Travel—ODL	0	1,050,000	1,050,000
Other	2,350	1,245,705	1,248,055
<b>Total Direct Costs</b>	284,392	59,998,254	60,282,646
Modified Total Direct Costs (if applicable)	269,892	890,323	1,160,215
<b>Indirect Costs or Administrative Fees</b>	143,043	471,871	614,914
<b>Total Technical, Engineering, and Science Support</b>	<b>\$427,435</b>	<b>\$60,470,125</b>	<b>\$60,897,560</b>
<b>Engineering Development</b>			
Salaries and Fringes	21,940	0	21,940
Travel	10,968	44,000	54,968
Supplies	5,000	3,000	8,000
Shipping	0	0	0
Communication	0	3,000	3,000
Contractual Services	0	25,000	25,000
Equipment	0	0	0
Other Direct Costs	0	0	0
<b>Total Direct Costs</b>	37,908	75,000	112,908
Modified Total Direct Costs (if applicable)	37,908	0	37,908
<b>Indirect Costs or Administrative Fees</b>	20,091	24,750	44,841
<b>Total Engineering Development</b>	<b>\$57,999</b>	<b>\$99,750</b>	<b>\$157,749</b>

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

## FY12 USIO SOC/POC WBE BUDGET DETAIL (CONTINUED)

Element/Expense Category	SOC	POC	Total
<b>Core Curation</b>			
Salaries and Fringes	279,000	86,000	365,000
Travel	48,000	16,000	64,000
Supplies	15,000	5,000	20,000
Shipping	18,750	6,250	25,000
Communication	2,625	875	3,500
Contractual Services	0	0	0
Equipment	0	0	0
Other Direct Costs	28,487	10,163	38,650
<b>Total Direct Costs</b>	<b>391,862</b>	<b>124,288</b>	<b>516,150</b>
Modified Total Direct Costs (if applicable)	0	0	0
<b>Indirect Costs or Administrative Fees</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Core Curation</b>	<b>\$391,862</b>	<b>\$124,288</b>	<b>\$516,150</b>
<b>Data Management</b>			
Salaries and Fringes	667,404	1,279,830	1,947,234
Travel	42,726	95,980	138,706
Supplies	29,190	56,410	85,600
Shipping	1,165	1,835	3,000
Communication	9,135	22,445	31,580
Contractual Services	0	0	0
Equipment	69,598	189,114	258,712
Other Direct Costs	141,570	305,650	447,220
<b>Total Direct Costs</b>	<b>960,788</b>	<b>1,951,264</b>	<b>2,912,052</b>
Modified Total Direct Costs (if applicable)	184,867	437,155	622,022
<b>Indirect Costs or Administrative Fees</b>	<b>97,980</b>	<b>231,692</b>	<b>329,672</b>
<b>Total Data Management</b>	<b>\$1,058,768</b>	<b>\$2,182,956</b>	<b>\$3,241,724</b>
<b>Publications</b>			
Salaries and Fringes	1,346,202	92,797	1,438,999
Travel	40,000	20,000	60,000
Supplies	36,500	0	36,500
Shipping	27,600	0	27,600
Communication	8,000	0	8,000
Contractual Services	0	0	0
Equipment	0	0	0
Other Direct Costs	45,550	0	45,550
<b>Total Direct Costs</b>	<b>1,503,852</b>	<b>112,797</b>	<b>1,616,649</b>
Modified Total Direct Costs (if applicable)	0	0	0
<b>Indirect Costs or Administrative Fees</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Publications</b>	<b>\$1,503,852</b>	<b>\$112,797</b>	<b>\$1,616,649</b>

(Continued on next page.)

## FY12 USIO SOC/POC WBE BUDGET DETAIL (CONTINUED)

Element/Expense Category	SOC	POC	Total
<b>Education</b>			
Salaries and Fringes	0	0	0
Travel	0	0	0
Supplies	0	0	0
Shipping	0	0	0
Communication	0	0	0
Contractual Services	0	0	0
Equipment	0	0	0
Other Direct Costs	0	0	0
<b>Total Direct Costs</b>	0	0	0
Modified Total Direct Costs (if applicable)	0	0	0
<b>Indirect Costs or Administrative Fees</b>	0	0	0
<b>Total Education</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Outreach</b>			
Salaries and Fringes	33,132	0	33,132
Travel	12,500	0	12,500
Supplies	3,400	0	3,400
Shipping	2,800	0	2,800
Communication	500	0	500
Contractual Services	21,700	0	21,700
Equipment	0	0	0
Other Direct Costs	0	0	0
<b>Total Direct Costs</b>	74,032	0	74,032
Modified Total Direct Costs (if applicable)	0	0	0
<b>Indirect Costs or Administrative Fees</b>	24,431	0	24,431
<b>Total Outreach</b>	<b>\$98,463</b>	<b>\$0</b>	<b>\$98,463</b>
Grand Total Direct Costs	3,673,263	65,348,970	69,022,233
Grand Total Indirect Costs/Administrative Fee	523,042	1,602,239	2,125,280
<b>TOTAL FY12 SOC/POC BUDGET</b>	<b>\$4,196,305</b>	<b>\$66,951,209</b>	<b>\$71,147,513</b>

## 2.4. USIO BUDGET THREE-YEAR VIEW

Work Breakdown Element	Expense Category	FY10 Breakdown				FY11 Breakdown				FY12 Breakdown			
		Budget	%	POC	SOC	Budget	%	POC	SOC	Budget	%	POC	SOC
Management and Administration	Salaries and Fringe	2,939,153	83.56%	88.49%	11.51%	2,965,305	83.46%	88.17%	11.83%	2,976,737	84.86%	87.85%	12.15%
	Travel	287,605	8.18%	85.78%	14.22%	294,351	8.28%	88.20%	11.80%	261,419	7.45%	87.60%	12.40%
	Other Direct Costs	290,600	8.26%	89.01%	10.99%	293,324	8.26%	88.91%	11.09%	269,640	7.69%	90.19%	9.81%
	Subtotal	\$3,517,358	100.00%	88.31%	11.69%	\$3,552,980	100.00%	88.24%	11.76%	\$3,507,796	100.00%	88.01%	11.99%
Technical, Engineering, and Science Services	Salaries and Fringe	6,507,292	11.49%	96.87%	3.13%	6,773,208	11.91%	96.59%	3.41%	7,179,811	11.91%	96.85%	3.15%
	Day Rate	29,637,170	52.33%	100.00%	0.00%	29,673,500	52.18%	100.00%	0.00%	30,185,638	50.07%	100.00%	0.00%
	Contractual Services	3,744,292	6.61%	100.00%	0.00%	3,850,292	6.77%	100.00%	0.00%	3,927,042	6.51%	100.00%	0.00%
	Supplies	2,594,675	4.58%	99.81%	0.19%	2,306,202	4.06%	99.91%	0.09%	1,899,450	3.15%	99.89%	0.11%
	Other Direct Costs	14,152,545	24.99%	99.87%	0.13%	14,267,970	25.09%	99.55%	0.45%	17,090,705	28.35%	99.67%	0.33%
	Subtotal	\$56,635,974	100.00%	99.60%	0.40%	\$56,871,172	100.00%	99.48%	0.52%	\$60,282,646	100.00%	95.68%	4.32%
Engineering Development	Salaries and Fringe	0	0.00%	0.00%	0.00%	50,269	79.65%	0.00%	100.00%	21,940	19.43%	0.00%	100.00%
	Other Direct Costs	0	0.00%	0.00%	0.00%	12,847	20.35%	0.00%	100.00%	90,968	80.57%	82.45%	17.55%
	Subtotal	\$0	0.00%	0.00%	0.00%	\$63,116	100.00%	0.00%	100.00%	\$112,908	100.00%	66.43%	33.57%
Core Curation	Salaries and Fringe	393,500	69.67%	27.19%	72.81%	361,500	78.54%	23.62%	76.38%	365,000	70.72%	23.56%	76.44%
	Other Direct Costs	171,327	30.33%	14.79%	85.21%	98,800	21.46%	25.00%	75.00%	151,150	29.28%	25.33%	74.67%
	Subtotal	\$564,827	100.00%	23.43%	76.57%	\$460,300	100.00%	23.91%	76.09%	\$516,150	100.00%	24.08%	75.92%
Data Management	Salaries and Fringe	1,764,394	63.07%	65.97%	34.03%	1,862,420	69.45%	65.51%	34.49%	1,947,234	66.87%	65.73%	34.27%
	Other Direct Costs	1,033,114	36.93%	64.63%	35.37%	819,348	30.55%	69.38%	30.62%	964,818	33.13%	69.59%	30.41%
	Subtotal	\$2,797,508	100.00%	65.48%	34.52%	\$2,681,768	100.00%	66.69%	33.31%	\$2,912,052	100.00%	67.01%	32.99%
Publications	Salaries and Fringe	1,350,500	88.38%	4.81%	95.19%	1,387,000	89.31%	4.61%	95.39%	1,438,999	89.01%	6.45%	93.55%
	Other Direct Costs	177,613	11.62%	10.98%	89.02%	166,000	10.69%	18.07%	81.93%	177,650	10.99%	11.26%	88.74%
	Subtotal	\$1,528,113	100.00%	5.53%	94.47%	\$1,553,000	100.00%	6.05%	93.95%	\$1,616,649	100.00%	6.98%	93.02%
Education	Salaries and Fringe	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%
	Other Direct Costs	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%
	Subtotal	\$0	0.00%	0.00%	0.00%	\$0	0.00%	0.00%	0.00%	\$0	0.00%	0.00%	0.00%
Outreach	Salaries and Fringe	29,774	69.61%	0.00%	100.00%	30,545	42.44%	0.00%	100.00%	33,132	44.75%	0.00%	100.00%
	Other Direct Costs	13,000	30.39%	0.00%	100.00%	41,432	57.56%	0.00%	100.00%	40,900	55.25%	0.00%	100.00%
	Subtotal	\$42,774	100.00%	0.00%	100.00%	\$71,977	100.00%	0.00%	100.00%	\$74,032	100.00%	0.00%	100.00%
Total Direct Costs		\$65,086,554				\$65,254,313				\$69,022,233			

## 3. ORGANIZATIONAL STRUCTURE

### 3.1. INTRODUCTION

Ocean Leadership has subcontracts with LDEO and with TAMU (through TAMRF) that formally establish the USIO for IODP. The USIO carries out all of its IODP deliverables through contracts with IODP-MI for science operating costs and with NSF for platform operating 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 SOC, POC, and other costs. The FTE allocation tables reflect actual FTEs as of 15 July 2011, plus projected FTEs for FY12. Staffing levels may change annually due to unanticipated changes in the operations schedule and/or scope of work. SOC FTEs shown in **Section 3.2.1. FY12 USIO FTE Allocation Summary** also include effort devoted to providing assistance to the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) and Center for Deep Earth Exploration (CDEX) as noted in the “Technical, Engineering, and Science Support,” “Data Management,” and “Publications” chapters and to IODP-MI as noted in the “Publications” chapter.

#### 3.2.1. FY12 USIO FTE Allocation Summary

SOC- and POC-supported FTEs by Work Breakdown Elements									
USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Otrch	Total
Ocean Leadership	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.25	4.38
LDEO	5.00	9.72	0.00	0.00	4.71	0.00	0.00	0.00	19.43
TAMU	4.50	63.00	0.00	3.90	18.00	22.00	0.00	0.00	111.40
<b>Totals</b>	<b>13.63</b>	<b>72.72</b>	<b>0.00</b>	<b>3.90</b>	<b>22.71</b>	<b>22.00</b>	<b>0.00</b>	<b>0.25</b>	<b>135.20</b>

Total FTEs by Expense Category				
USIO Office	SOC	NSF	Other	Total
Ocean Leadership	1.38	3.00	3.73	8.10
LDEO	3.81	15.61	0.00	19.43
TAMU	30.23	81.18	0.10	111.50
<b>Totals</b>	<b>35.41</b>	<b>99.79</b>	<b>3.83</b>	<b>139.03</b>

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., other Program integrated costs [OPIC], San Andreas Fault Observatory at Depth [SAFOD], etc.); SOC = science operating costs; POC = platform operating costs. Student workers and TAMRF administrative support staff are not included in the table.

## 3.2.2. FY12 USIO FTE Allocation Detail

Position			% Work Breakdown Elements (SOC- and POC-supported FTEs)										% Effort Totals			
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Orch	Total	SOC	POC	Other	Total	
Bob Gagosian	President and Chief Executive Officer	Ocean Leadership	12.5%	0%	0%	0%	0%	0%	0%	0%	12.5%	0%	12.5%	0%	12.5%	
Colin Reed	Executive Assistant	Ocean Leadership	12.5%	0%	0%	0%	0%	0%	0%	0%	12.5%	0%	12.5%	0%	12.5%	
David Divins	Director, Ocean Drilling Programs	Ocean Leadership	87.5%	0%	0%	0%	0%	0%	0%	0%	87.5%	25%	62.5%	12.5%	100%	
Greg Myers	Senior Technical Expert	Ocean Leadership	100%	0%	0%	0%	0%	0%	0%	0%	100%	18.75%	81.25%	0%	100%	
Doug Fils	Technical Expert	Ocean Leadership	100%	0%	0%	0%	0%	0%	0%	0%	100%	50%	50%	0%	100%	
Margo Morell	Assistant Director, Ocean Drilling	Ocean Leadership	100%	0%	0%	0%	0%	0%	0%	0%	100%	18.75%	81.25%	0%	100%	
Julie Farver	Manager, Travel Services	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	10%	
Audrey Divins	Administrative Assistant	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	
Sarah Saunders	Director, Science Communications	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	12.5%	12.5%	12.5%	0%	67.5%	80%	
Kristin Ludwig	Manager, Communications	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	12.5%	12.5%	12.5%	0%	62.5%	75%	
Leslie Peart	Director, Education	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	
Sharon Cooper	Assistant Director, Education	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	
Jessie Swanseen	Administrative Assistant	Ocean Leadership	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	
TOTAL Ocean Leadership FTEs			4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.25	4.38	1.38	3.00	3.73	8.10	
Dave Goldberg	Director	LDEO	50%	0%	0%	0%	0%	0%	0%	0%	50.00%	6%	44%	0%	50%	
TBN	Administrative Assistant	LDEO	100%	0%	0%	0%	0%	0%	0%	0%	100%	12%	88%	0%	100%	
Alberto Malinverno	Principal Scientist	LDEO	0%	50%	0%	0%	0%	0%	0%	0%	50.0%	12.5%	37.5%	0%	50%	

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; Orch = Outreach; Other = efforts funded by other sources (e.g., other Program integration costs [OPIC], San Andreas Fault Observatory at Depth [SAFOD], etc.); TBN = to be named. We anticipate filling all TBN positions before or during FY12. Student workers and TAMRF administrative support staff are not included in the table. (Continued on next seven pages.)

## FY12 USIO FTE Allocation Detail (continued)

Position		% Work Breakdown Elements (SOC- and POC-supported FTEs)										% Effort Totals			
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Orch	Total	SOC	POC	Other	Total
Mary Reagan	Deputy Director	LDEO	100%	0%	0%	0%	0%	0%	0%	0%	100%	12%	88%	0%	100%
Simon Draper	Office Coordinator	LDEO	0%	42%	0%	0%	0%	0%	0%	0%	42%	0%	42%	0%	42%
Carl Brenner	Technical Services Specialist	LDEO	50%	0%	0%	0%	0%	0%	0%	0%	50%	6%	44%	0%	50%
David Grames	Project Coordinator	LDEO	100%	0%	0%	0%	0%	0%	0%	0%	100%	12%	88%	0%	100%
TBN	Project Coordinator	LDEO	100%	0%	0%	0%	0%	0%	0%	0%	100%	12%	88%	0%	100%
Sarah Davies	Logging Consortium Chief Scientist	LDEO	0%	8%	0%	0%	0%	0%	0%	0%	8%	0%	8%	0%	8%
Eric Meissner	Manager, Engineering and Technical Services	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	25%	75%	0%	100%
Walt Masterson	Engineering/Logistics Coordinator	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	25%	75%	0%	100%
Geetika Kapoor	Electrical Engineer	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	25%	75%	0%	100%
Stefan Mrozewski	Mechanical Engineer	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	25%	75%	0%	100%
Gerardo Iturrino	Supervisor, Science Operations	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	25%	75%	0%	100%
Louise Anderson	Logging Staff Scientist	LDEO	0%	42%	0%	0%	0%	0%	0%	0%	42%	0%	42%	0%	42%
Helen Evans	Logging Staff Scientist	LDEO	0%	100%	0%	0%	0%	0%	0%	0%	100%	7%	22%	0%	29%
Annick Fehr	Logging Staff Scientist	LDEO	0%	17%	0%	0%	0%	0%	0%	0%	17%	0%	17%	0%	17%
Gilles Guerin	Logging Staff Scientist	LDEO	0%	74.75%	0%	0%	0%	0%	0%	0%	74.75%	18.75%	56%	0%	74.75%
Jenny Inwood	Logging Staff Scientist	LDEO	0%	17%	0%	0%	0%	0%	0%	0%	17%	0%	17%	0%	17%
Johanna Lofi	Logging Staff Scientist	LDEO	0%	42%	0%	0%	0%	0%	0%	0%	42%	0%	42%	0%	42%
Angela Slagle	Logging Staff Scientist	LDEO	0%	74.75%	0%	0%	0%	0%	0%	0%	74.75%	18.75%	56%	0%	74.75%
Trevor Williams	Logging Staff Scientist	LDEO	0%	75%	0%	0%	0%	0%	0%	0%	75%	19%	56%	0%	75%
Dan Quidbach	Manager, Information Services	LDEO	0%	0%	0%	0%	100%	0%	0%	0%	100%	40%	60%	0%	100%
Ted Baker	Systems Analyst/Database Administrator	LDEO	0%	0%	0%	0%	100%	0%	0%	0%	100%	40%	60%	0%	100%
Golam Sarkar	Technical Analyst	LDEO	0%	0%	0%	0%	100%	0%	0%	0%	100%	40%	60%	0%	100%
Cristina Broglia	Supervisor, Data Services	LDEO	0%	0%	0%	0%	50%	0%	0%	0%	50%	0%	50%	0%	50%

(Continued on next six pages.)

## FY12 USIO FTE Allocation Detail (continued)

Position		% Work Breakdown Elements (SOC- and POC-supported FTEs)										% Effort Totals			
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Orch	Total	SOC	POC	Other	Total
Tanzhuo Liu	Senior Log Analyst	LDEO	0%	0%	0%	0%	100%	0%	0%	0%	100%	0%	100%	0%	100%
Bob Arko	Database Developer	LDEO	0%	0%	0%	0%	21%	0%	0%	0%	21%	0%	21%	0%	21%
	<b>TOTAL LDEO FTEs</b>		<b>5.00</b>	<b>9.72</b>	<b>0.00</b>	<b>0.00</b>	<b>4.71</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>19.43</b>	<b>3.81</b>	<b>15.61</b>	<b>0.00</b>	<b>19.43</b>
Brad Clement	Director	TAMU	50%	0%	0%	0%	0%	0%	0%	0%	50%	2.5%	47.5%	0%	50%
Barbara McCannon	Administrative Assistant	TAMU	100%	0%	0%	0%	0%	0%	0%	0%	100%	5%	95%	0%	100%
Bill Wasson	Manager, IODP Business Services	TAMU	100%	0%	0%	0%	0%	0%	0%	0%	100%	5%	95%	0%	100%
TBN	Supervisor, IODP Human Resources	TAMU	100%	0%	0%	0%	0%	0%	0%	0%	100%	5%	95%	0%	100%
Ollie Berka	Human Resources Representative	TAMU	100%	0%	0%	0%	0%	0%	0%	0%	100%	5%	95%	0%	100%
John Firth	Curator	TAMU	0%	0%	0%	95%	0%	0%	0%	0%	95%	70%	25%	5%	100%
Phil Rumford	Superintendent, GCR	TAMU	0%	0%	0%	95%	0%	0%	0%	0%	95%	70%	25%	5%	100%
Chad Broyles	Curatorial Specialist II	TAMU	0%	0%	0%	100%	0%	0%	0%	0%	100%	75%	25%	0%	100%
TBN	Curatorial Specialist II	TAMU	0%	0%	0%	100%	0%	0%	0%	0%	100%	75%	25%	0%	100%
Mitch Malone	Assistant Director/Manager, Science Operations	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Janice Muston	Administrative Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
William Rinehart	Supervisor, Engineering Services	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Kevin Grigar	Senior Staff Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Bob Aduddell	Staff Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Liping Chen	Senior Design Engineer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Dean Ferrell	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Mike Meiring	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Eric Schulte	Senior Designer	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Karen Graber	Staff Researcher	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Mike Storms	Supervisor, Operations Support	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%

(Continued on next five pages.)



## FY12 USIO FTE Allocation Detail (continued)

Position		% Work Breakdown Elements (SOC- and POC-supported FTEs)										% Effort Totals			
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Orch	Total	SOC	POC	Other	Total
Ron Grout	Operations Superintendent	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Steve Midgley	Operations Superintendent	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Dave Lehnert	Materials Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Robert Mitchell	Marine Logistics Coordinator	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Tyrone Brashear	Materials Technician	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Sandy Dillard	Shipping and Receiving Coordinator	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Adam Klaus	Supervisor, Science Support	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Carlos Alvarez-Zarikian	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Peter Blum	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Katerina Petronotis	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Nicole Stronick	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
TBN	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
TBN	Staff Scientist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Jay Miller	Manager, Technical and Analytical Services	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
John Miller	Business Coordinator II	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
David Houpt	Supervisor, Analytical Systems	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Chris Bennight	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Lisa Brandt	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Trevor Cobine	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Thomas Gorgas	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Maggie Hastedt	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Sandra Hermann	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Zenon Mateo	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Maxim Vasilyev	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Yulia Vasilyeva	Research Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Michael Bertoli	Research Assistant	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%

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**FY12 USIO FTE Allocation Detail (continued)**

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

(Continued on next three pages.)

## FY12 USIO FTE Allocation Detail (continued)

Position		% Work Breakdown Elements (SOC- and POC-supported FTEs)										% Effort Totals			
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Orch	Total	SOC	POC	Other	Total
Jurie Kotze	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Garrick Van Rensburg	Senior Marine Instrumentation Specialist	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Jim Rosser	Manager, Development, IT, and Databases	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Denise Ponzio	Information Services Assistant	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Phil Gates	Supervisor, Information Technology Support	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Cesar Flores	Senior Systems Administrator	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Jennifer Hutchinson	Systems Administrator	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Matt Mefford	Systems Administrator	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Mike Petersen	Senior Systems Support Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Tiffany Bloxom	Systems Support Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
James Cordray	Systems Support Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Chuck Haddick	Systems Support Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Mike Hodge	Associate Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Grant Banta	Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Michael Cannon	Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%

(Continued on next two pages.)

**FY12 USIO FTE Allocation Detail (continued)**

Position		% Work Breakdown Elements (SOC- and POC-supported FTEs)										% Effort Totals			
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Orch	Total	SOC	POC	Other	Total
Andrew Trefethen	Marine Computer Specialist	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	25%	75%	0%	100%
Paul Foster	Supervisor, Applications Development	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
David Fackler	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Dwight Hornbacher	Applications Developer IV	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Timothy Blaisdell	Applications Developer III	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Algie Morgan	Applications Developer III	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Long Nguyen	Applications Developer III	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
James Zhao	Applications Developer III	TAMU	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	100%
Rakesh Mithal	Supervisor, Databases/Archives	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	75%	25%	0%	100%
Saranavan Nagarajan	Senior Software Applications Developer	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	75%	25%	0%	100%
Don Sims	Data Analyst	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	75%	25%	0%	100%
TBN	Systems Analyst II	TAMU	0%	0%	0%	0%	100%	0%	0%	0%	100%	75%	25%	0%	100%
Angie Miller	Manager, Publication Services	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Lorri Peters	Supervisor, Editing	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Ginny Lowe	Editor IV	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Jenni Hesse	Editor III	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Shana Lewis	Editor III	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Amy McWilliams	Editor III	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Erin O'Roke	Editor II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
TBN	Editor I	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Jaime Gracia	Supervisor, Production	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%

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## FY12 USIO FTE Allocation Detail (continued)

Position		% Work Breakdown Elements (SOC- and POC-supported FTEs)										% Effort Totals			
Name	Position Title	USIO Office	M&A	TESS	ED	CC	DM	Pubs	Ed	Orch	Total	SOC	POC	Other	Total
Patrick Edwards	Production Specialist III	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Kenneth Sherar	Production Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Crystal Wolfe	Production Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
TBN	Production Specialist I	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Ann Yeager	Distribution Specialist I	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
Debbie Partain	Supervisor, Graphics	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	80%	20%	0%	100%
Tim Fulton	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	80%	20%	0%	100%
Rhonda Kappeler	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	80%	20%	0%	100%
Paul Pleasant	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	80%	20%	0%	100%
Alyssa Stephens	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	80%	20%	0%	100%
TBN	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	80%	20%	0%	100%
TBN	Graphics Specialist II	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	80%	20%	0%	100%
Gigi Delgado	Senior Publications Coordinator	TAMU	0%	0%	0%	0%	0%	100%	0%	0%	100%	100%	0%	0%	100%
TOTAL TAMU FTEs			4.50	63.00	0.00	3.90	18.00	22.00	0.00	0.00	111.40	30.23	81.18	0.10	111.50

## 4. EXPEDITION OPERATIONS

### 4.1. INTRODUCTION

This Annual Program Plan is based on the operations schedule published 7 July 2011, including two maintenance periods that assume a Caribbean tie-up location.

16 September–17 November 2011	Mid-Atlantic Ridge Microbiology Expedition
17 November 2011–17 January 2012	Mediterranean Outflow Expedition
17 January–6 February 2012	Atlantis Massif Oceanic Core Complex Expedition
6 February–18 March 2012	Lesser Antilles Volcanism and Landslides Expedition
18 March–18 June 2012	Maintenance Period
18 June–17 August 2012	Newfoundland Sediment Drifts Expedition
17 August–17 October 2012	Maintenance Period

### 4.2. OPERATIONS

#### 4.2.1. Expedition 336: Mid-Atlantic Ridge Microbiology

##### *Proposed Operations*

Expedition 336: Mid-Atlantic Ridge Microbiology will install multilevel seafloor borehole observatories (circulation obviation retrofit kits) at three sites (395A, NP-1, and NP-2) for long-term coupled microbiological, biogeochemical, and hydrological experiments. The basaltic crust will also be characterized by coring parts of the crust, collecting downhole in situ petrophysical data by wireline logging, and conducting hydrologic (packer) experiments. Coring at four sites will characterize the overlying sediment section.

##### *Logistics*

Operations for the Expedition 336 require an estimated 62 days (2 in port, 10 in transit to and from the first/last sites, and 50 in operations).

#### 4.2.2. Expedition 339: Mediterranean Outflow

##### *Proposed Operations*

Expedition 339: Mediterranean Outflow will core and log at six sites to obtain a Pliocene–Quaternary sedimentary record to understand the paleoceanography and global climate significance of Mediterranean Outflow Water, the influence of the Gibraltar Gateway, sea level changes and sediment architecture of the Cadiz contourite depositional system (CDS) and Iberian margin, and the synsedimentary neotectonic control on architecture and evolution of the CDS. In addition, to address Ancillary Project Letter (APL) 763, one site will be cored to obtain a high-fidelity record of millennial-scale climate variability for the Pleistocene to serve as a marine reference section of Pleistocene climate variability.

##### *Logistics*

Operations for the Expedition 339 are budgeted based on an estimated 61 days (5 in port, 5 in transit, and 51 in operations).

### **4.2.3. Expedition 340T: Atlantis Massif Oceanic Core Complex**

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

Expedition 340T: Atlantis Massif Oceanic Core Complex will re-enter Hole U1309D for a check shot survey and wireline logging to provide velocity, porosity, and impedance contrasts to determine the relationship between measured seismic reflectivity and downhole geologic characteristics in the domal core of Atlantis Massif.

#### ***Logistics***

Operations for the Expedition 340T are budgeted based on an estimated 20 days (5 days in port, 12 days in transit, and 3 in operations).

### **4.2.4. Expedition 340: Lesser Antilles Volcanism and Landslides**

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

Expedition 340: Lesser Antilles will core and log at a suite of sites to obtain a complete record of eruptive activity and volcanoclastic sedimentation of the most active volcanic complexes of the Lesser Antilles arc (Martinique, Dominica, Montserrat) over the last 1 to 5 m.y., focusing on edifice collapse and debris-avalanche emplacement, a dominant process in Caribbean volcanism. The results will have implications for hazard assessment and significantly improve our understanding of the history and long-term magmatic evolution of the arc.

#### ***Logistics***

Operations for Expedition 340 are budgeted based on an estimated 41 days (1 in port, 2 in transit, and 38 in operations).

### **4.2.5. Expedition 342: Newfoundland Sediment Drifts**

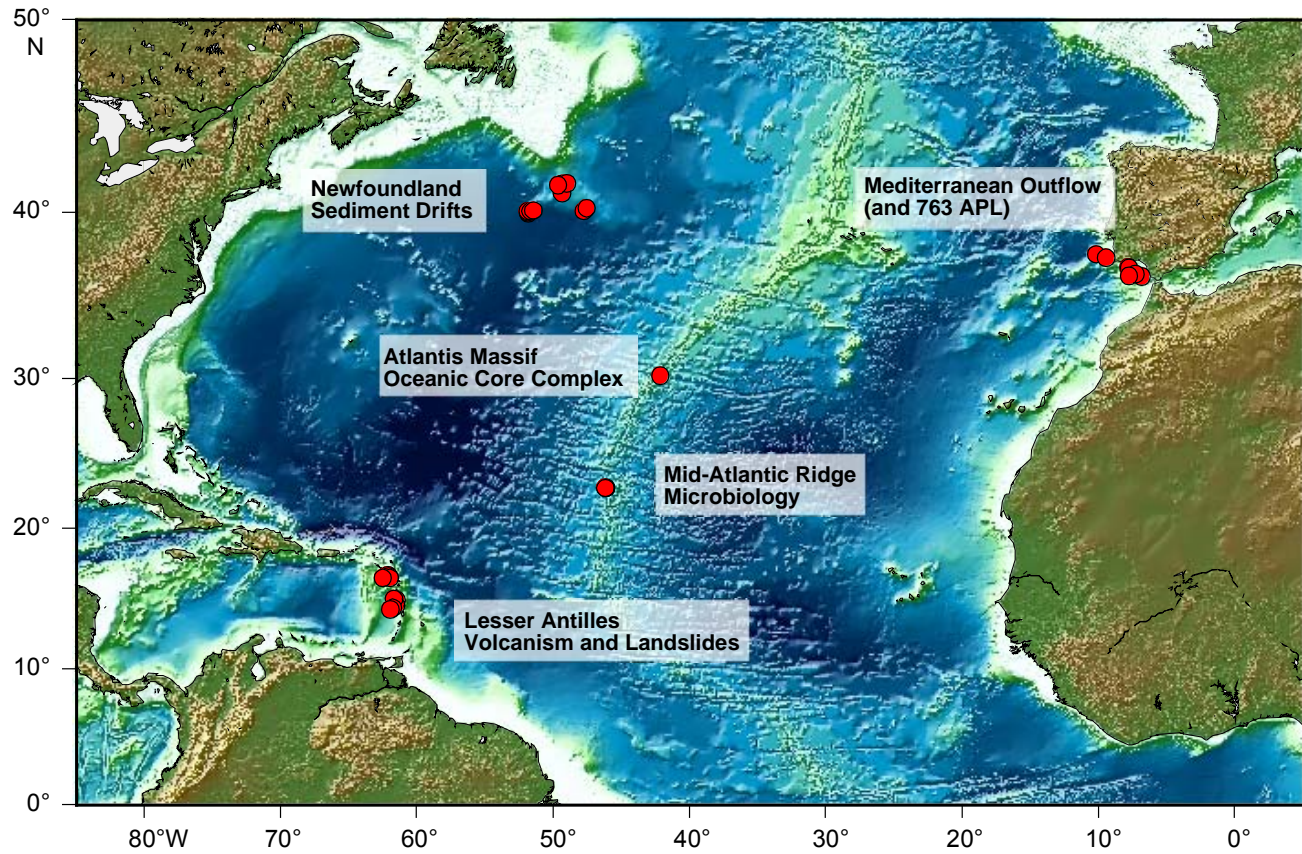
#### ***Proposed Operations***

Expedition 342: Newfoundland Sediment Drifts will core and log a depth transect between 2400 m and 5000 m water depth into a sequence of sediment drifts of late Cretaceous-Oligocene age on the J Anomaly and SE Newfoundland Ridges. The drilling area contains an extensive record of early Late Cretaceous and Paleogene “extreme climate” events and the possible onset of Northern Hemisphere glaciation in the Eocene. In addition, engineering tests will be conducted on the Motion Decoupled Hydraulic Delivery System, which, if successful, will provide more isolation from drill string movement during deployment of wireline temperature and pressure probes than the collated delivery system.

#### ***Logistics***

Operations for Expedition 342 are budgeted based on an estimated 60 days (4 in port, 11 in transit, and 45 in operations).

## 4.3. IODP-USIO FY12 SITE MAP





## 4.4. EXPEDITION OPERATIONS BUDGET

Expense Category	Expedition 336: Mid-Atlantic Microbiology	Expedition 339: Mediterranean Outflow	Expedition 340T: Atlantis Massif	Expedition 340: Lesser Antilles	Maintenance Period	Expedition 342: Newfoundland Sediment Drifts <sup>1</sup>	Maintenance Period	Total
	47 days <sup>2</sup>	61 days	20 days	41 days	92 days <sup>3</sup>	60 days	45 days	366 days <sup>4</sup>
<b>Ship Operations</b>								
Day Rate	3,916,839	5,073,172	1,656,355	3,414,740	7,475,920	4,991,912	3,656,700	30,185,638
Communications <sup>5</sup>	37,271	48,373	15,860	32,513	72,956	47,592	35,685	290,250
Fuel and Lubricants <sup>6</sup>	0	1,385,325	787,250	937,650	918,850	1,597,660	1,260,515	6,887,250
Per Diem <sup>7</sup>	84,600	110,550	16,800	74,050	75,360	109,000	30,150	500,510
Port Calls <sup>8,9</sup>	0	268,000	50,000	243,000	201,000	278,000	233,000	1,273,000
Insurance <sup>9</sup>	268,511	348,493	114,260	234,233	324,576	342,780	158,699	1,791,552
Travel—ODL <sup>6,10</sup>	0	150,000	0	150,000	300,000	150,000	300,000	1,050,000
Other Expenses—ODL <sup>6,11</sup>	0	19,000	0	19,000	5,000	19,000	3,000	65,000
<b>Contractual Services</b>								
Schlumberger	504,310	654,530	214,600	439,930	987,160	643,800	482,712	3,927,042
<b>Total</b>	<b>\$4,811,531</b>	<b>\$8,057,443</b>	<b>\$2,855,125</b>	<b>\$5,545,116</b>	<b>\$10,360,822</b>	<b>\$8,179,744</b>	<b>\$6,160,461</b>	<b>\$45,970,242</b>

<sup>1</sup> Expedition 342 will be partially supported through commingled funds from IODP-MI.

<sup>2</sup> Only the FY12 portion is included in this budget.

<sup>3</sup> The first maintenance period in Curaçao will begin 18 March 2012 and end 18 June 2012.

<sup>4</sup> The FY12 schedule totals 366 days because 2012 is a leap year.

<sup>5</sup> Communications expenses include Marisat costs that will be incurred when very small aperture terminal (VSAT) service is unavailable because of the vessel's location. With the exception of the non-IODP period, amounts reflect the possibility of some days at a higher global bandwidth rate while the vessel is under way.

<sup>6</sup> Fuel and lubricants, port calls, travel—ODL, and other expenses—ODL that are required for the remainder of Expedition 336 were budgeted in late FY11. Fuel and lubricant costs for Expedition 342 reflect the requirement to return to minimal safety levels before redeployment.

<sup>7</sup> During the first maintenance period, 21 personnel are expected for the first 60 days, and 10 personnel are expected thereafter. For the second maintenance period, 10 personnel are expected for the duration of the maintenance period.

<sup>8</sup> The port call beginning the second maintenance period is expected to be in Curaçao.

<sup>9</sup> Insurance estimates are based on projected rates for FY12 received from the provider (ANCO), with premiums for Sections 1 and 2 of the Hull and Machinery policy discounted during the maintenance periods.

<sup>10</sup> Cost estimates, number, and location of crew changes have been confirmed with the ODL logistics representative. Three crew changes are expected during the maintenance periods.

<sup>11</sup> Other expenses—ODL includes expenses for possible medical evacuations and supplies and maintenance costs incurred by ODL that are not included in the day rate.

Expedition costs included in this budget cover SOC and POC activities in support of the USIO FY12 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 FY12 expeditions and initial FY13 expeditions, and transit and/or work on the ship during the maintenance period.

***Supplies***—Office and operational supplies.

Safety equipment and operational, laboratory, logistic, and shipping supplies for the FY12 expeditions and long-lead supplies for FY13 expeditions.

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

Costs for shipments to and from FY12 expeditions.

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

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

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

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

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

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

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

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

Cost of staffing the ship, including the sailing crew and drilling personnel, but not including the cost of the USIO personnel or scientists aboard the ship. The day rate varies according to the mode of the ship, which is operating (drilling or cruising) or standing by (in port). Although it is a fixed rate per day, the day rate is adjusted for changes in the Consumer Price Index-Urban (CPI-U) and Employment Cost Index (ECI). The amount is based on a 366-day schedule that includes two maintenance periods. The first maintenance period (18 March–18 June 2012) is 92 days in duration and the second maintenance period (17 August–17 October 2012) is 61 days in duration, the FY12 portion of which is 45 days. For budgeting purposes, Curaçao has been tentatively designated as the location for both maintenance periods. The weighted average operating and standby day rates for the period are \$83,337 and \$81,260, respectively. The budget allows for two CPI-U base adjustments and two ECI base adjustments, all at 2.2%, effective 1 October 2011 and 1 July 2012.

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

FY12 ship operations fuel purchases are estimated at a total of 5,625 metric tons: 1,200 metric tons in Ponta Delgada, Azores (Portugal); 1,500 metric tons in Lisbon, Portugal; and 2,925 metric tons in Curaçao (2,000 when redeploying after the first maintenance period and 925 after the second). While the second redeployment will occur in early FY13, funds are budgeted in FY12 because of the contractual requirement to advance pay the ship subcontractor for fuel purchases. Refuelings are budgeted at \$1,175 to \$1,270 per metric ton, depending on location. Price per metric ton is based on prices quoted by Bunkerworld on 5 July 2011 for the locations specified, plus a 20% inflation factor.

*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 \$30/day/person for all nontransit and nonmaintenance periods. For periods at sea when no Science Party is on board, which may occur during transit periods, estimates are based on a shipboard party of 20 at \$42 day/person (per the catering contract, the cost per person increases when the shipboard party decreases during transits and the maintenance periods). The cost during the first maintenance period is based on 21 on board during the first 60 days at a daily rate of \$42/person and 10 on board during the remaining days of the maintenance period at a daily rate of \$67/person. The second maintenance period assumes 10 on board for its duration. Also included is \$3,000 for meals served during port calls (including the maintenance period) to all nonseagoing personnel. This category does not include per diem for the ship subcontractor's sailing crew and drilling personnel, as they are accounted for in the day rate unless charged as a reimbursable (see "Day Rate" above).

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

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

category also includes the lodging and per diem costs for ODL crew changes, based on the total number of rooms required and a breakfast and dinner for each crew person occupying a room, all according to federal rates.

Port calls are scheduled for Ponta Delgada, Azores (Portugal) (5 days); Lisbon, Portugal (5 days); St. Johns, Antigua (1 day); Curaçao (two maintenance periods of 92 days and 45 days, and 5 days to prepare for redeployment at the conclusion of the first maintenance period); and St. Johns, Canada (3 days).

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

Subcontractor's premium costs for All Risks Marine Hull and Machinery (H&M) and Removal of Wreck (ROW) insurance and TAMRF premium costs for General and Automobile Liability, Workers Compensation, Cargo, Third Party Property (Equipment), Excess Liability, Control of Well and Seepage and Pollution Liability, Charterers Legal Liability, and Contractor's Pollution Liability—Gradual coverage for the vessel. All premium amounts are based on 366 days of coverage, and the premiums for Sections 1 and 2 of the H&M coverage are discounted 50% during the maintenance periods.

*Travel—ODL*—Subcontractor transportation.

Airfare for ship subcontractor's crews to/from seven scheduled crew changes—Ponta Delgada, Azores (Portugal); Lisbon, Portugal; and Curaçao (two during the first maintenance period and one just prior to redeployment in mid-October 2012). The cost of the crew change in mid-October must be budgeted in FY12 because of advance booking requirements. The estimate is based on a crew of 60 personnel with various domestic and international origin fly points arriving and departing each port call. Expedition costs are based on round trip airfares for the ship subcontractor's sailing crew and drilling personnel to travel to the port call where the expedition begins and return from the port call where the expedition ends.

*Relocation*—Relocation costs for new 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 miscellaneous charges payable to the ship's subcontractor, drill pipe maintenance, wireline severing charges, transfer fees, weather reports, and annual physical examinations for seagoing personnel.

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

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

*Recruiting*—Employee recruitment.

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

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

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

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

For LDEO, indirect costs at 53% are assessed on all charges except permanent equipment. In addition, subcontracts are charged indirect costs on the first \$25,000 of each contract. The indirect costs for subcontracts established prior to FY12 have already been paid, so these subcontracts are not subject to indirect cost during FY12. 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 FY12

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

### 5.3. BUDGET

Management and Administration			
Element/Expense Category	SOC	POC	Total
Salaries and Fringes	361,573	2,615,164	2,976,737
Travel	32,410	229,009	261,419
Supplies	6,450	39,100	45,550
Shipping	2,221	8,279	10,500
Communication	10,890	45,990	56,880
Contractual Services	0	30,000	30,000
Equipment	0	0	0
Other Direct Costs	6,885	119,825	126,710
Training	1,425	27,075	28,500
Business Conferences	175	3,325	3,500
Insurance	300	5,700	6,000
Services	3,320	52,090	55,410
TAMU Computing Services	1,000	19,000	20,000
Equipment Rental	50	950	1,000
Furniture	150	2,850	3,000
Recruiting	25	475	500
Maintenance and Repair	350	6,650	7,000
Library	90	1,710	1,800
<b>Total Direct Costs</b>	420,429	3,087,367	3,507,796
Modified Total Direct Costs (if applicable)	74,340	483,616	557,956
<b>Indirect Costs or Administrative Fees</b>	237,497	873,926	1,111,423
<b>Total Management and Administration</b>	<b>\$657,926</b>	<b>\$3,961,293</b>	<b>\$4,619,219</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 3.2. USIO FTE Allocation Tables). Also includes salaries and fringes for 14.12 TAMRF FTEs who provide administrative support.

***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 and Ocean Leadership).

***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—None budgeted.

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

***Equipment***—None budgeted.

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

***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).

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

SOC/POC—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.

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

LDEO: 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 FY12 have already been paid, so these subcontracts are not subject to indirect cost during FY12. 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 CDEX and technical advice and logistical assistance ESO and CDEX for Schlumberger and other logging services for their expeditions in FY12.

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 FY12 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 FY12

- Expedition Planning and Implementation: Provide scientific, technical, and operational planning and execution for each scheduled expedition, including provision of a drilling platform. Conduct long-range operational and science planning for out-year expeditions.
- Reporting: Provide expedition-related reports and content for expedition publications (e.g., *Scientific Prospectus*, *Preliminary Report*, etc.). Act as a liaison to SAS and other panels, task forces, and workshops as appropriate.
- Expedition Staffing: Provide selection and support for scientific staffing and Co-Chief Scientist selection for each scheduled USIO expedition. Provide support for shipboard and shore-based technical personnel and activities.
- Logistics Support: Provide for expedition and shore-based activities including procurement, shipping, and inventory of equipment and supplies.
- Analytical Systems: Support and maintain shipboard and shore-based analytical facilities, tools, instruments, and associated quality assurance/quality control (QA/QC) protocols. Ensure effective capture and transfer of expedition data to database systems.
- Logging: Provide for the delivery of logging services, including wireline fishing and back-off/severing services for each scheduled USIO expedition. Provide technical advice to ESO and CDEX for Schlumberger and other logging operations, and arrange for Schlumberger and other logging services for ESO and CDEX, where appropriate.
- Environmental Assessment: Provide for environmental assessment services for marine mammal permitting associated with seismic operations.
- Engineering Support: Provide engineering support for maintaining and developing shipboard and shore-based drilling, coring, logging, and downhole systems, including third-party developments and long-lead time borehole installation projects, for each scheduled USIO expedition. Provide formation temperature measurement services to CDEX for their FY12 expeditions, as necessary.
- Engineering Development: Drilling Sensor Sub—continued development of the drilling sensor sub (DSS) tool to (1) measure drilling and coring parameters near the bit during operations, (2)

save the data in onboard memory, and (3) wirelessly transmit the data to the retrievable memory module, which is recovered with the core and downloaded on the surface. Deliverables for FY12 include deployment for shipboard testing, pending successful bench and shore testing of the DSS tool in FY11.

- 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	SOC	POC	Total
Salaries and Fringes	226,082	6,953,729	7,179,811
Travel	47,603	1,147,361	1,194,964
Supplies	2,000	1,897,450	1,899,450
Shipping	4,397	1,098,887	1,103,284
Communication	1,960	322,450	324,410
Contractual Services	0	3,927,042	3,927,042
Equipment	0	1,717,680	1,717,680
Other Direct Costs	2,350	42,933,655	42,936,005
Day Rate	0	30,185,638	30,185,638
Fuel and Lubricants	0	6,887,250	6,887,250
Per Diem	0	500,510	500,510
Port Calls	0	1,273,000	1,273,000
Insurance	0	1,791,552	1,791,552
Travel—ODL	0	1,050,000	1,050,000
Other	2,350	1,245,705	1,248,055
Relocation	0	45,000	45,000
Training	0	205,150	205,150
Business Conferences	0	17,500	17,500
Insurance	0	8,000	8,000
Services	2,350	687,255	689,605
Other Expense—ODL	0	65,000	65,000
Furniture	0	2,000	2,000
Recruiting	0	35,000	35,000
Maintenance and Repair	0	173,000	173,000
Library	0	7,800	7,800
<b>Total Direct Costs</b>	284,392	59,998,254	60,282,646
Modified Total Direct Costs (if applicable)	269,892	890,323	1,160,215
<b>Indirect Costs or Administrative Fees</b>	143,043	471,871	614,914
<b>Total Technical, Engineering, and Science Support</b>	<b>\$427,435</b>	<b>\$60,470,125</b>	<b>\$60,897,560</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 staff providing technical support during CDEX expeditions.

POC—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.

SOC—Travel for USIO staff who will sail on the *Chikyu* during CDEX expeditions.

POC—Travel to IODP meetings and workshops, pre-expedition and postexpedition meetings, and FY13 planning meetings; meetings with drilling equipment supply vendors; conferences; subcontract site visits; and travel costs for USIO staff who will work at port calls, sail on FY12 and initial FY13 expeditions and transit, and/or work on the ship during the maintenance period. 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); and printer and copier supplies. 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; operational, laboratory, logistic, and shipping supplies for shipboard and shore-based analytical and engineering laboratory and test facilities, FY12 expeditions, and long-lead supplies for FY13 expeditions. Other drilling or science supplies may be purchased in support of USIO deliverables using cost avoidances gained during the fiscal year.

and shipboard and shore-based analytical and engineering laboratory and test facilities.

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

SOC—Shipping of tools to the *Chikyu* for use during CDEX expeditions.

POC—Postage for regular correspondence and small packages and shipping to and from FY12 expeditions.

**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*.

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

SOC—None budgeted.

POC—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, wireline fishing, back-off and severing services, the day rate and travel expenses for the Schlumberger engineer, and the day rate for tool insurance for the deployment of downhole logging tools. Other contracts provide test and calibration services for analytical equipment and downhole measurement tools. In addition, costs are budgeted for contractual services from LGL Limited associated with environmental evaluation for marine mammal permitting associated with seismic operations.

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

SOC—None budgeted.

POC—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), replacement of electronic systems in the Vibration Isolated Television system, upgrade of software and related equipment in the Rig Instrumentation system, and acquisition of parts and spare units for temperature and other downhole measurement tools. Acquisition of new analytical systems (e.g., Picarro detector for carbon analysis) and capital replacement of failed or obsolete laboratory equipment, including but not limited to stereoscopes for higher magnification imagery, microscopes, image capture systems for microscopy, Cahn electrobalances, Carver presses, global positioning system antennas and control systems, ashing furnace, parallel saw, and analytical bead maker.

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

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

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 a 366-day schedule that includes two maintenance periods. The first maintenance period (18 March – 18 June 2012) is 92 days in duration and the second maintenance period (17 August–17 October 2012) is 61 days in duration, the FY12 portion of which is 45 days. For budgeting purposes, Curaçao has been tentatively designated as the location for both maintenance periods. The weighted average operating and standby day rates for the period are \$83,337 and \$81,260, respectively. The budget allows for two CPI-U base adjustments and two ECI base adjustments, all at 2.2%, effective 1 October 2011 and 1 July 2012.

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

SOC—None budgeted.

POC—FY12 ship operations fuel purchases are estimated at a total of 5,625 metric tons: 1,200 metric tons in Ponta Delgada, Azores (Portugal); 1,500 metric tons in Lisbon, Portugal; and 2,925 metric tons in Curaçao (2,000 when redeploying after the first maintenance period and 925 after the second). While the second redeployment will occur in early FY13, funds are budgeted in FY12 because of the contractual requirement to advance pay the ship subcontractor for fuel purchases. Refuelings are budgeted at \$1,175 to \$1,270 per metric ton, depending on location. Price per metric ton is based on prices quoted by Bunkerworld on 5 July 2011 for the locations specified, plus a 20% inflation factor.

*Per Diem*—Shipboard catering.

SOC—None budgeted.

POC— 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 \$30/day/person for all nontransit and nonmaintenance periods. For periods at sea when no Science Party is on board, which may occur during transit periods, estimates are based on a shipboard party of 20 at \$42 day/person (per the catering contract, the cost per person increases when the shipboard party decreases during transits and the maintenance periods). The cost during the first maintenance period is based on 21 on board during the first 60 days at a daily rate of \$42/person and 10 on board during the remaining days of the maintenance period at a daily rate of \$67/person. The second maintenance period assumes 10 on board for its duration. Also included is \$3,000 for meals served during port calls (including the maintenance period) to all nonseagoing personnel. This category does not include per diem for the ship subcontractor's sailing crew and drilling personnel, as they are accounted for in the day rate unless charged as a reimbursable (see "Day Rate" above).

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

SOC—None budgeted.

POC— Port calls are scheduled for Ponta Delgada, Azores (Portugal) (5 days); Lisbon, Portugal (5 days); St. Johns, Antigua (1 day); Curaçao (two maintenance periods of 92 days and 45 days, and 5 days to prepare for redeployment at the conclusion of the first maintenance period); and St. Johns, Canada (3 days).

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

SOC—None budgeted.

POC— Subcontractor's premium costs for All Risks Marine H&M and ROW insurance and TAMRF premium costs for General and Automobile Liability, Workers Compensation, Cargo, Third Party Property (Equipment), Excess Liability, Control of Well and Seepage and Pollution Liability, Charterers Legal Liability, and Contractor's Pollution Liability—Gradual coverage for the vessel. All premium amounts are based on 366 days of coverage, and the premiums for Sections 1 and 2 of the H&M coverage are discounted 50% during the maintenance periods.

*Travel*—ODL—Subcontractor transportation.

SOC—None budgeted.

POC— Airfare for ship subcontractor's crews to/from seven scheduled crew changes—Ponta Delgada, Azores (Portugal); Lisbon, Portugal; and Curaçao (two during the first maintenance period and one just prior to redeployment in mid-October 2012). The cost of the crew change in mid-October must be budgeted in FY12 because of advance booking requirements. The estimate is based on a crew of 60 personnel with various domestic and international origin fly points arriving and departing each port call. Expedition costs are based on round trip airfares for the ship subcontractor's sailing crew and drilling personnel to travel to the port call where the expedition begins and return from the port call where the expedition ends.

*Relocation*—Relocation costs for new employees.

SOC—None budgeted.

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—None budgeted.

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

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

SOC—None budgeted.

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—None budgeted.

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, drill pipe maintenance, equipment testing and calibration (including DSS), machine shop services, costs to cover miscellaneous charges payable to the ship's subcontractor, wireline severing charges, transfer fees, and weather reports.

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

SOC—None budgeted.

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

*Furniture*—Office furniture.

SOC—None budgeted.

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

*Recruiting*—Employee recruitment.

SOC—None budgeted.

POC—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.

SOC—None budgeted.

POC—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.

SOC—None budgeted.

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 FY12 have already been paid, so these subcontracts are not subject to indirect cost during FY12. 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. DELIVERABLE IN FY12

- **Multisensor Magnetometer Module:** Continue development of the multisensory magnetometer module (MMM), a new magnetometer tool under development at LDEO (FY12 will be the third year of the project). The MMM will produce continuous records of the magnetic field in the borehole, from which magnetization and polarity of the rocks surrounding the borehole can be calculated. This downhole magnetic information will complement core sample magnetic measurements and significantly enhance IODP's ability to magnetostratigraphically date sediment sequences. Deliverables for this project include tool delivery, modifications to extend LDEO and Schlumberger telemetry systems and surface panel software, and completion of third-party tool certification requirements in FY12, followed by bench and field tests at the LDEO test well and sea deployment.
- **USIO Technical Panel:** Create and operate the new USIO Technical Panel (UTP), through which external members from industry and academia will participate in bi-annual meetings to review engineering and operations issues within the USIO with the purpose of providing third-party advice to aid the USIO. The UTP will be 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	SOC	POC	Total
Salaries and Fringes	21,940	0	21,940
Travel	10,968	44,000	54,968
Supplies	5,000	3,000	8,000
Shipping	0	0	0
Communication	0	3,000	3,000
Contractual Services	0	25,000	25,000
Equipment	0	0	0
Other Direct Costs	0	0	0
<b>Total Direct Costs</b>	37,908	75,000	112,908
Modified Total Direct Costs (if applicable)	37,908	0	37,908
<b>Indirect Costs or Administrative Fees</b>	20,091	24,750	44,841
<b>Total Engineering Development</b>	<b>\$57,999</b>	<b>\$99,750</b>	<b>\$157,749</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 staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables).

POC—None budgeted.

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

SOC—Travel for meetings with contractors and calibration tests of the MMM tool in the Schlumberger calibration facility for magnetic tools.

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

**Supplies**—Office and operational supplies.

SOC—Operational, logistic, and shipping supplies.

POC—General office supplies, printer supplies, and general computer supplies to support UTP functions.

**Shipping**—None budgeted.

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

SOC—None budgeted.

POC—Telephone, web conference, and video conferencing as needed to support the UTP.

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

SOC—None budgeted.

POC—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.

SOC—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 FY12 have already been paid, so these subcontracts are not subject to indirect cost during FY12. MTDCs are the total direct costs minus these exceptions.

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

## 8. CORE CURATION

### 8.1. GOALS

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

### 8.2. DELIVERABLES IN FY12

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

## 8.3. BUDGET

<b>Core Curation</b>			
<b>Element/Expense Category</b>	<b>SOC</b>	<b>POC</b>	<b>Total</b>
Salaries and Fringes	279,000	86,000	365,000
Travel	48,000	16,000	64,000
Supplies	15,000	5,000	20,000
Shipping	18,750	6,250	25,000
Communication	2,625	875	3,500
Contractual Services	0	0	0
Equipment	0	0	0
Other Direct Costs	28,487	10,163	38,650
Relocation	7,500	2,500	10,000
Training	5,625	1,875	7,500
Business Conferences	750	250	1,000
Services	6,862	2,288	9,150
Recruiting	3,250	1,750	5,000
Maintenance and Repair	4,500	1,500	6,000
<b>Total Core Curation Direct Costs</b>	<b>391,862</b>	<b>124,288</b>	<b>516,150</b>
Modified Total Direct Costs (if applicable)	0	0	0
<b>Indirect Costs or Administrative Fees</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Core Curation</b>	<b>\$391,862</b>	<b>\$124,288</b>	<b>\$516,150</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, 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.

SOC/POC—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 FY12 expeditions.

**Supplies**—Office and operational supplies.

SOC/POC—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 shipments, and hosting sampling parties.

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

SOC/POC—Postage for regular correspondence, regular-sized sample shipments to scientists, and as many as 10 special sample shipments for FY12 (for deep-frozen microbiological samples, U-channels, or whole core sections for X-ray fluorescence scanning) at an average cost of \$1,000 each.

**Communication**—Telephone and fax charges.

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

**Contractual Services**—None budgeted.

**Equipment**—None budgeted.

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

*Relocation*—Relocation costs for new employees.

SOC/POC—Relocation costs for new employees.

*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).

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

SOC/POC—Expenses for groups of scientists, educators, or others visiting GCR.

*Services*—Expert assistance.

SOC/POC—Annual physical examinations for seagoing personnel.

*Recruiting*—Employee recruitment.

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

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

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

## 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 information technology (IT) services, and providing database services for postmortality ESO and CDEX log data.

### 9.2. DELIVERABLES IN FY12

- 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 postmortality 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

<b>Data Management</b>			
<b>Element/Expense Category</b>	<b>SOC</b>	<b>POC</b>	<b>Total</b>
Salaries and Fringes	667,404	1,279,830	1,947,234
Travel	42,726	95,980	138,706
Supplies	29,190	56,410	85,600
Shipping	1,165	1,835	3,000
Communication	9,135	22,445	31,580
Contractual Services	0	0	0
Equipment	69,598	189,114	258,712
Other Direct Costs	141,570	305,650	447,220
Training	21,750	32,250	54,000
Business Conferences	175	525	700
Software	15,000	45,000	60,000
Services	36,020	24,400	60,420
Maintenance and Repair	67,475	202,425	269,900
Library	1,150	1,050	2,200
<b>Total Direct Costs</b>	960,788	1,951,264	2,912,052
Modified Total Direct Costs (if applicable)	184,867	437,155	622,022
<b>Indirect Costs or Administrative Fees</b>	97,980	231,692	329,672
<b>Total Data Management</b>	<b>\$1,058,768</b>	<b>\$2,182,956</b>	<b>\$3,241,724</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 3.2. USIO FTE Allocation Tables).

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

SOC—Travel to IODP meetings and travel costs for USIO staff who will work at port calls and sail on FY12 expeditions and transit. Also includes LDEO travel to professional training courses and meetings.

POC—Travel costs for USIO staff who will work at port calls and sail on FY12 expeditions and transit. 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) and \$5,000 (for LDEO), including printers, laptops, tablet computers, and monitors (LDEO); 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) 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.

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, 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.

SOC/POC—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.

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 FY12 have already been paid, so these subcontracts are not subject to indirect cost during FY12. MTDCs are the total direct costs minus these exceptions.



## 10. PUBLICATIONS

### 10.1. GOALS

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

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

### 10.2. DELIVERABLES IN FY12

- IODP Publications: Advise IODP-MI on scientific publication efforts. The following publications will be published or in production:
  - ~10 scientific reports (*Scientific Prospectuses* and *Preliminary Reports*);
  - Expedition reports from 14 IODP expeditions (8 USIO expeditions and 6 CDEX expeditions); and
  - Postexpedition data reports and synthesis papers from 21 IODP expeditions (11 USIO expeditions, 8 CDEX expeditions, and 2 ESO expeditions).
- IODP Reports: The following reports will be edited and produced:
  - Four IODP-USIO quarterly reports;
  - IODP-USIO Annual Program Plans to IODP-MI (SOC/POC) and NSF (POC/OPIC with SOC Appendix), including original versions and all revisions required by funding agencies; and
  - One IODP-USIO FY12 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 four USIO and two CDEX expeditions and editorial, graphics, and production support during six postexpedition meetings.
- 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

<b>Publications</b>			
<b>Element/Expense Category</b>	<b>SOC</b>	<b>POC</b>	<b>Total</b>
Salaries and Fringes	1,346,202	92,797	1,438,999
Travel	40,000	20,000	60,000
Supplies	36,500	0	36,500
Shipping	27,600	0	27,600
Communication	8,000	0	8,000
Contractual Services	0	0	0
Equipment	0	0	0
Other Direct Costs	45,550	0	45,550
Relocation	10,000	0	
Training	2,000	0	2,000
Business Conferences	3,300	0	3,300
Services	21,650	0	21,650
Equipment Rental	300	0	300
Recruiting	5,000	0	
Maintenance and Repair	1,300	0	1,300
Library	2,000	0	2,000
<b>Total Direct Costs</b>	<b>1,503,852</b>	<b>112,797</b>	<b>1,616,649</b>
Modified Total Direct Costs (if applicable)	0	0	0
<b>Indirect Costs or Administrative Fees</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Publications</b>	<b>\$1,503,852</b>	<b>\$112,797</b>	<b>\$1,616,649</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 staff supporting the USIO (see Section 3.2. USIO FTE Allocation Tables) and for USIO staff providing Publications Assistant support for CDEX expeditions.

POC—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.

SOC—Travel costs for IO and USIO meetings, and professional conferences, for USIO staff to provide Publications Assistant support for CDEX IODP expeditions, for nonsailing USIO staff to work at port calls, and to bring off-site USIO staff to participate in on-site meetings.

POC—Travel costs for USIO staff who will sail on FY12 and initial FY13 expeditions and transit and/or work on the ship during the maintenance period.

**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, IODP scientific reports, and *Proceedings of the Integrated Ocean Drilling Program* volume DVDs with Expedition Reports content, and freight charges for bulk shipments to and 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.

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

SOC—Relocation costs for new employees (TAMU).

POC—None budgeted.

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

SOC—Registration and travel costs for professional training courses.

POC—None budgeted.

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

SOC—Meal expenses related to hosting meetings.

POC—None budgeted.

***Services***—Expert assistance.

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

POC—None budgeted.

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

SOC—Water cooler rental.

POC—None budgeted.

***Recruiting***—Employee recruitment.

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

POC—None budgeted.

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

SOC—Copier repairs and copier and forklift maintenance agreement.

POC—None budgeted.

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

SOC—Reference books and subscriptions.

POC—None budgeted.

## 11. EDUCATION

### 11.1. GOALS

USIO Education responsibilities include developing and disseminating expedition-specific and thematic education activities and materials for elementary through post-secondary and free-choice learning audiences, and promoting diversity programs and partnerships to provide learning opportunities, mentoring, fellowships, and other horizon-building experiences for minority students to explore careers in the Earth System sciences. Expedition-specific activities will include current expeditions and supporting legacy resources.

The USIO facilitates education activities through Deep Earth Academy (funded jointly by the USIO and the United States Science Support Program) in cooperation with other U.S. education and outreach groups, conducting teacher education activities; developing, testing, and disseminating educational curriculum that highlights IODP science programs; and implementing live and near-real-time programs that highlight and use the *JOIDES Resolution* as a platform for education. These activities require direct and indirect interfacing with students and educators through a variety of activities targeting U.S. middle-school, high-school, undergraduate, family, and museum audiences. The USIO also conducts diversity outreach initiatives to allow minority students to pursue studies in earth systems sciences or to explore careers in scientific ocean drilling and large-scale science program management.

### 11.2. DELIVERABLES IN FY12

No SOC/POC deliverables are scheduled for FY12.

### 11.3. BUDGET

With no deliverables scheduled in FY12, 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.

The USIO raises the visibility of IODP an innovative international earth science research program to new and existing audiences by targeting informational outreach to the general public, science and general-interest media, scientists and engineers from both within the IODP community and beyond, and decision makers at large national concerns. 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 FY12

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

- **Media Outreach 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 science 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.
- **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 Training:** Provide media training for Co-Chief Scientists and select Science Party members of all *JOIDES Resolution* expeditions; provide similar training as appropriate for other members of the IODP community.
- **Global Outreach Activities:** Coordinate outreach activities with other IODP entities, including IODP-MI, ECORD, and CDEX.
- **Legacy Documentation:** Routinely format and archive electronic copies of relevant products and publications (e.g., press releases, media clips, brochures, newsletters, and so on) produced by the USIO on behalf of IODP.

## 12.3. BUDGET

Outreach			
Element/Expense Category	SOC	POC	Total
Salaries and Fringes	33,132	0	33,132
Travel	12,500	0	12,500
Supplies	3,400	0	3,400
Shipping	2,800	0	2,800
Communication	500	0	500
Contractual Services	21,700	0	21,700
Equipment	0	0	0
Other Direct Costs	0	0	0
<b>Total Direct Costs</b>	74,032	0	74,032
Modified Total Direct Costs (if applicable)	0	0	0
<b>Indirect Costs or Administrative Fees</b>	24,431	0	24,431
<b>Total Outreach</b>	<b>\$98,463</b>	<b>\$0</b>	<b>\$98,463</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 3.2. USIO FTE Allocation Tables).

POC—None budgeted.

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

SOC—A portion of the cost of participating in outreach to stakeholders, press events, media training, and staffing of booths at national and international meetings.

POC—None budgeted.

**Supplies**—Office and operational supplies.

SOC—General office supplies, printer and copier supplies, and electronic media and other computer supplies with an acquisition cost of less than \$1,000.

POC—None budgeted.

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

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

POC—None budgeted.

**Communication**—Telephone and fax charges.

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

POC—None budgeted.

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

SOC—Platform enrichment activities, including preparation of public relations materials, posters, and multimedia products; media 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 33% was used to calculate Ocean Leadership G&A costs. Each year, G&A costs are charged on all Ocean Leadership direct costs and on the first \$100,000 of all subcontracts Ocean Leadership administers under a particular contract (e.g., total annual G&A on LDEO and TAMRF subcontracts = \$66,000). The G&A costs for the two subcontracts (LDEO and TAMRF) are divided evenly between SOC G&A and POC G&A (\$33,000 each = \$16,500 SOC + \$16,500 NSF).

POC—None budgeted.

# IODP Annual Program Plan

FY2012

[Appendix C](#)





**Integrated Ocean Drilling Program  
Program Plan  
For  
US Fiscal Year 2012**

**Japan Agency for Marine-Earth  
Science and Technology  
Submitted: 25<sup>th</sup> November 2011**

Respectfully Submitted to:  
IODP Management International, Inc.

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Dr. Wataru Azuma, Director General - CDEX  
Japan Agency for Marine-Earth Science and Technology



**CENTER FOR DEEP EARTH EXPLORATION**

3173-25 Showa-machi, Kanazawa, Yokohama 236-0001 Japan  
<http://www.jamstec.go.jp/chikyuu/> [cdex@jamstec.go.jp](mailto:cdex@jamstec.go.jp)

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## 1. Introduction

The Center for Deep Earth Exploration (CDEX; <http://www.jamstec.go.jp/chikyu/eng/>) is one of four technology centers structured by Japan Agency for Marine-Earth Science and Technology (JAMSTEC; <http://www.jamstec.go.jp/e/>). CDEX manages Drilling Vessel (D/V) *Chikyu*, the first scientific riser-drilling vessel in terms of drawing up the safe and efficient operation plan and providing sufficient scientific and technical support to the onboard scientists as well as developing the necessary technique to succeed in the deep sea riser drilling.

CDEX currently plans to implement three expeditions in FY2012: 1) J Fast (Expedition 343, The Tohoku Earthquake Rapid Response Drilling), 2) Deep Coalbed Biosphere off Shimokita (Expedition 337) and 3) NanTroSEIZE Stage 3: Plate Boundary Deep Riser-2 (Expedition 338). Although the operation details of Rapid Response Drilling have not been decided yet, the cost presented in this plan includes all three expeditions.

## 2. Budget Summary

To achieve the FY12 IODP scientific objectives, CDEX proposes the budget summarized in Budget summary table below.

Budget Summary		Unit in US \$ (¥85/\$)	
WBE	SOC	POC	Total
Management and Administration	783,113	824,500	1,607,613
Technical, Engineering and Science Support	7,489,649	37,266,854	44,756,502
Engineering Development	-	-	-
Core Curation	591,696	15,000	606,696
Data Management	770,088	-	770,088
Publications	-	-	-
Outreach	300,888	208,645	509,533
<b>Total</b>	<b>9,935,434</b>	<b>38,314,999</b>	<b>48,250,432</b>
Direct Costs	8,907,476	38,314,999	47,222,474
Indirect Costs	1,027,958	-	1,027,958

### 3. FTE Allocation

Name	Role	SOC Work Breakdown Element (%)						Effort Total (%)		
		M&A	TESS	ED	Core	Data Mgt.	Outreach	SOC	POC	Oth.
W. Azuma	CDEX & KCC Center Manager							-	25%	75%
T Kobayashi	Vice Center Manager							-	25%	75%
Y. Yamada	Administration Dep. Head							-	25%	75%
S. Kuramoto	IODP Promotion Group Leader							-	50%	50%
N. Ahagon	KCC Science Support Group Leader	50%						50%	-	50%
K. Saeki	Coordination Staff							-	50%	50%
M. Yamao	Operations Dep. Head	25%	25%					50%	-	50%
H. Saga	Advisor							-	-	100%
N. Taniguchi	Advisor		50%					50%	-	50%
K. Hatakeyama	Marine Affairs Group Leader							-	50%	50%
S. Goto	Contract Officer							-	50%	50%
I. Sawada	Drilling Planning Group Leader	25%	25%					50%	-	50%
T. Saruhashi	Drilling Engineer		50%					50%	-	50%
K. Muta	Drilling Designer		50%					50%	-	50%
Moe Kyaw Thu	Site Survey Group Leader		50%					50%	-	50%
T. Kaminishi	Geologist							-	50%	50%
K. Aoike	Geologist		100%					100%	-	-
N. Eguchi	Science Operations Group Leader	25%	25%					50%	-	50%
Y. Kubo	Staff Scientist		100%					100%	-	-
S. Toczko	Staff Scientist	50%	50%					100%	-	-
C. Igarashi	Lab Coordinator		100%					100%	-	-
T. Nawate	Procurement		50%					50%	50%	-
Y. Kosuge	Maintenance Group Leader		50%					50%	-	50%
Y. Mizuguchi	Technical Supervisor		50%					50%	-	50%
S. Matsuda	HSE Officer							-	-	100%
M. Kyo	LTBMS Project Manager							-	100%	-
K. Kato	LTBMS Mech. Engineer		50%					50%	-	50%
Y. Shinmoto	Downdhole Tool Engineer							-	50%	50%
L. Gupta	IODP Curator	25%			75%			100%	-	-
T. Hisamitsu	Repository Curator				100%			100%	-	-
N. Masui	Micro-bio Curator				50%			50%	-	50%
Y. Shiga	System Manager	25%				75%		100%	-	-
Y. Sanada	CLSI					100%		100%	-	-
Y. Kido	CLSI					75%	25%	100%	-	-
K. Takahashi	Database Engineer					100%		100%	-	-
T. Sugihara	IT Engineer					100%		100%	-	-
T. Yoshizawa	IODP Communicator	25%					75%	100%	-	-
T. Omata	Communicator							-	-	100%
								-	25%	75%
Man-Year		2.50	8.25	0.00	2.25	4.50	1.00	18.50	11.25	32.25

### 4. Expedition Operations

#### 4.1 Introduction

Chikyū plans to return from non-IODP work at the end of February 2012 in this fiscal year and the beginning of IODP operations during FY 2012 is expected to start from late March or early April 2012. This plan is different from the previously proposed one but due to the 3.11 event, the non-IODP work has been delayed and this new scenario came online. Furthermore, a new azimuth thruster installation is now delayed due to the manufacturer's schedule. The new thruster installation is now scheduled in late May and Chikyū has to be in a dry dock about a month starting from early/mid May including its preparation. Therefore, possible windows for IODP operations has been amended from the one considered at OTF and accepted by SASEC, BoG and LAs (June 2011). The new scenario includes: Expedition 343 (J Fast : The Tohoku Earthquake Rapid Response Drilling) about 2 months, early Apr to late May), the rescheduling of Exp. 337 "Deep Coalbed Biosphere off Shimokita" (2 months, late June to late August), and Exp. 338 "NanTroSEIZE Stage 3; Plate Boundary Deep Riser -2" (starting from September and continues to the next fiscal year; approximately 4 months).

## 4.2 Expedition Details

The table below shows all expeditions expected to be carried out by *Chikyu* in FY11 through FY12. The activities marked with red in the table below correspond to *Chikyu's* IODP missions in FY12, including the Expedition 338 Deep Riser Drilling campaign, which will be continued into the next IODP phase.

Activity Name	Duration (Days)	Start Date	Finish Date	FY11				FY12				FY13			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Exp.332 NanTroSEIZE Observatories</b>	45	29-Oct-2010	12-Dec-2010												
<b>Exp.333 NanTroSEIZE Observatories</b>	28	13-Dec-2010	9-Jan-2011												
<b>Exp.343 J fast</b>	55	1-Apr-2012	25-May-2012												
<b>Dock(repair azimuth thruster)</b>	32	26-May-2012	26-Jun-2012												
<b>Exp.337 Shimokita</b>	73	6-Jul-2012	16-Sep-2012												
<b>Exp.338 NanTroSEIZE Riser 13-3/8" CSG</b>	12	19-Sep-2012	30-Sep-2012												

The proposed plan is subject to change based on the IODP-MI requirements /recommendations or operation criteria requirements.

### 4.2.1 J Fast (The Tohoku Earthquake Rapid Response Drilling)

The 2011 Tohoku Earthquake (Mw 9.0) off the Pacific coast of Japan produced huge slip (~ 50 meters) on the shallow portion of the fault close to the toe of the megathrust. The large displacement on this portion of the subduction zone was unexpected by earthquake scientists and caused the devastating tsunami that took over 23,000 lives and inflicted massive damage along the northeast coast of Honshu. The main science goal of this project is to understand the physical mechanisms of large slip during earthquakes, which is a fundamental issue that is currently poorly understood. Specifically, the level of frictional stress during the earthquake rupture and the physical characteristics of the fault zone will be investigated. This topic has obvious social consequences globally for evaluating severe shaking and large tsunamis from future earthquakes at subduction zones. The fundamental scientific objectives of this project include characterizing the fault and wall rock composition, fault architecture and the nature of heat and pressure within and around the fault zone, located approximately 1000 meters below the sea floor. Two riserless holes will be drilled; one LWD hole to locate the fault zone, and one core hole to sample the fault zone. Each hole will be completed with an observatory deployment, comprised of a suite of temperature and pressure sensors.

### 4.2.2 Expedition 337: Deep Coalbed biosphere off Shimokita

#### Site Location (See Fig. 4.2.2)

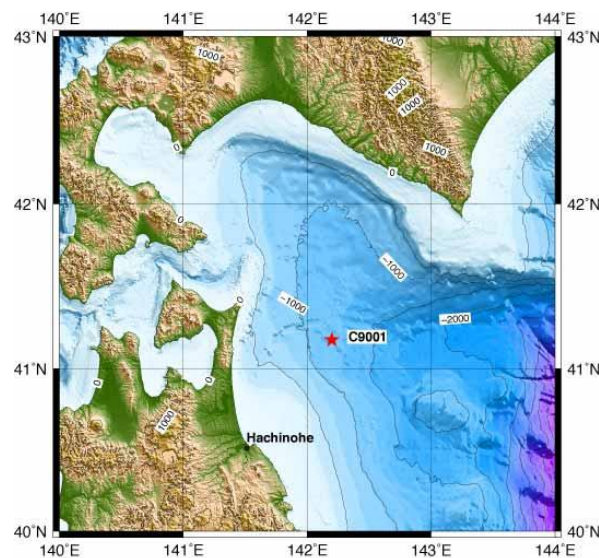
Site	Location	Water depth (m)	Operation	Transit (Day)	Drilling (Day)
C9001	41°10.5983'N 142°12.0328'E	1180	Coring, logging, casing	4	69

**Science Objectives:** This project will extend riser hole **C9001D** (drilled and cased during *Chikyu's* shakedown cruise in 2006) to 2200 mbsf to investigate a coal bed hydrocarbon-associated deep microbial

ecosystem. Eocene to Cretaceous lignite layers (~60% TOC) of approximately 100 m thick contain large amounts of coal bed methane, part of a microbial habitat that has never been explored by scientific ocean drilling.

**Environment and Safety:** The site was selected based on extensive seismic surveys and a nearby MITI Sanriku-Oki well. Previously drilled borehole **C9001D** was cased to the depth of 511 mbsf, and suspended for the future drilling.

**Logistics:** This expedition will last for 68 days. Detailed plans for staffing and logistics will be decided after official approval.



**Fig 4.2.2. Expedition 337 drill site.**

#### 4.2.3 Expedition 338: NanTroSEIZE Stage 3, Plate Boundary Deep Riser -2

##### Site Location

Site	Location	Water depth (m)	Operation	Transit (Day)	Drilling (Day)
C0002	33°18.0507'N 136°38.2029'E	1968	LWD, spot coring, WL logging, casing	2	10 (In FY12)

**Science Objectives:** Site C0002 is the centerpiece of the NanTroSEIZE project, intended to access the plate interface fault system at a location where it is believed to be capable of seismogenic locking and slip and to have slipped coseismically in the 1944 Tonankai earthquake. The primary targets include both the basal décollement and the reflector known as the “megasplay fault”. The megasplay fault zone and the accretionary prism domain are the location of a newly identified class of earthquakes known as very low frequency earthquakes as well as the first observation of shallow tectonic tremor. The megasplay fault reflector lies at an estimated depth of 5000 – 5200 mbsf, and the top of the subducting basement is estimated to lie at 6800 – 7000 mbsf. During this phase of the operation, we aim to reach a point just above the “megasplay fault” zone with LWD, spot coring at the deepest part of the hole, conduct WL logging and set 13-3/8” casing.

**Environment and Safety:** The site was selected based on scientific importance, with a 36" conductor pipe, riser wellhead as well as 20" casing set at a depth of 860.3 mbsf during IODP Exp. 326.

**Logistics:** This expedition is planned for total of 128 days. Detailed logistics discussions are still underway among the NanTroSEIZE Project Management Team. At least one EPM (Expedition Project Manager/Staff Scientist) is assigned and 4 Co-Chief scientists will be selected. The shipboard science party is envisioned to include 27 scientists onboard at a time and rotating every about 1.5 months, embarkation and disembarkation will be made by helicopter from Minami-Ise.

#### 4.3 Expedition budget summary

Expense Category	(JPY/day)	Unit in US \$ (¥85/\$)							
		Rapid Response		Expedition 337		Expedition 338		Total	
		55 days		73 days		12 days			
		SOC	POC	SOC	POC	SOC	POC		
Salary and Fringes		\$ 172,792	\$ -	\$ 229,343	\$ -	\$ 37,700	\$ -	\$ 439,835	
Travel		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Supplies		\$ 22,603	\$ -	\$ 30,000	\$ -	\$ 4,932	\$ -	\$ 57,534	
Shipping (including cost for deep-freezing core)		\$ 100,000	\$ -	\$ 300,000	\$ -	\$ 100,000	\$ -	\$ 500,000	
Communication		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Equipment		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Contractual Services		\$ 776,360	\$ -	\$ 2,032,307	\$ -	\$ 251,426	\$ -	\$ 3,060,093	
Other Direct Costs(Chikyu Operation and mgt.)		\$ -	\$ 18,604,043	\$ -	\$ (*) 9,900,000	\$ -	\$ 6,378,593	\$ 34,882,636	
Total Direct Costs		\$ 1,071,755	\$ 18,604,043	\$ 2,591,650	\$ 9,900,000	\$ 394,058	\$ 6,378,593	\$ 38,940,099	
Modified Direct Costs (if applicable)		\$ 295,395	\$ -	\$ 559,343	\$ -	\$ 142,632	\$ -	\$ 997,369	
Indirect Costs/Administrative Fee		\$ 88,619	\$ -	\$ 167,803	\$ -	\$ 42,789	\$ -	\$ 299,211	
Total		\$ 1,160,374	\$ 18,604,043	\$ 2,759,452	\$ 9,900,000	\$ 436,847	\$ 6,378,593	\$ 39,239,310	

(\*) 70% of Exp. 337 costs are excluded from the above table, as they will be borne by external funds (MEXT/JSPS)

## 5. Management and Administration

### 5.1 Goals

- Plan, coordinate (with other IODP-related entities), oversee, review, and report on IODP activities.

### 5.2 Deliverables

- 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 entities (e.g., SAS meeting), Program Member Offices and other national organizations and participate in IODP-MI Task Forces, working groups, etc.
- Contract Services:** Provide contract services for IODP-related activities.

### 5.3 Management and Administration budget table and justifications

Unit in US \$ (¥85/\$)			
Expense	SOC	POC	Total
Salary and Fringes	345,472	370,971	716,442
Travel	170,000	453,529	623,529
Supplies	20,000	-	20,000
Shipping	-	-	-
Communication	8,000	-	8,000
Contractual Services	76,600	-	76,600
Equipment	-	-	-
Other Direct Costs	-	-	-
Total Direct Costs	620,072	824,500	1,444,572
Modified Direct Costs (If applicable)	543,472	-	543,472
Indirect Costs/Administrative Fee	163,041	-	163,041
<b>Total</b>	<b>783,113</b>	<b>824,500</b>	<b>1,607,613</b>

**Salaries and fringes:** Salaries and fringes for staff in CDEX (see FTE allocation table)

**Travel:** Transportation, per diem, accommodation and other associated cost for all foreign and domestic travel including international meetings (IODP related meetings), domestic meetings, travel to shore base, travel to Helibase, travel to subcontractor site (SOC USD 170,000/POC USD 453,529).

**Supplies:** General office supplies

**Communication:** Telephone charges, Mobile phone charges, fax charges and postage.

**Contractual Services:** Part-time worker and Computer and software rental.

## 6. Technical, Engineering and Science Support

### 6.1 Goals

- Manage, coordinate, and perform activities and provide the services, materials, platforms, and ship- and shore-based laboratories necessary to support IODP expeditions.

### 6.2 Deliverables

- **Expedition Planning and Implementation:** Provide scientific and operational planning and execution for every scheduled expedition, including provision of a drilling platform. Conduct long-range operational 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 as appropriate.
- **Expedition Staffing:** Provide selection and support for scientific staffing and co-chief selection for each scheduled expeditions. 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:** Provide and maintain shipboard and shore-based analytical facilities and associated QA/QC protocols. Ensure effective capture and transfer of expedition data to database systems.
- **Logging:** Provide for the delivery of logging services aboard each respective platform including back-off/severing services where needed.



- **Engineering Support:** Provide engineering support for maintaining and developing shipboard and shore-based drilling, coring, and downhole systems including third-party developments.

### 6.3 TESS budget table and justifications

Unit in US \$ (¥85/\$)			
Expense	SOC	POC	Total
Salary and Fringes	1,146,713	897,357	2,044,070
Travel	-	-	-
Supplies	150,000	-	150,000
Shipping	500,000	-	500,000
Communication	-	-	-
Contractual Services	5,153,922	6,779,082	11,933,003
Equipment	-	-	-
Other Direct Costs	-	29,590,415	29,590,415
Total Direct Costs	6,950,635	37,266,854	44,217,488
Modified Direct Costs (If applicable)	1,796,713	-	1,796,713
Indirect Costs/Administrative Fee	539,014	-	539,014
<b>Total</b>	<b>7,489,649</b>	<b>37,266,854</b>	<b>44,756,502</b>

**Salaries and fringes:** Salaries and fringes for staff in CDEX (See FTE allocation table)

**Travel:** None budgeted

**Supplies:** Consumables for onboard lab equipment and stationeries.

**Shipping:** Shipping of core samples to scientist including deep-freezing core.

**Communication:** None budgeted

**Contractual Services:**

1) **Lab Technical Services:** Annual contract for Lab Technical Services. The contractor provides 24 hours on-board lab technical services during expeditions as well as preparation works, equipment maintenance and procurement of lab consumables throughout the year. SOC covers personnel cost for lab technicians for IODP period and minimum onboard laboratory maintenance (4 Lab technicians) during non-IODP period.

- Lab technicians	(SOC – USD 1,403,160 /POC – USD 1,778,614)
- Travel Expense for Lab Technicians	(SOC – None budgeted /POC – USD 705,882)
- Lab consumables	(SOC– None budgeted /POC – USD 352,941)
- Overhead	(SOC– None budgeted /POC – USD 894,161)
(Total)	(SOC– USD 1,403,160 /POC – USD 3,731,598)

2) **Logistic Support:** Transportation cost for science party (including Publication Assistants and APCT/DVTP engineers from TAMU) between hotel to Minami-Ise Heliport, hotel to Shingu shore base and their baggage transportation from Minami-Ise Heliport to Shingu base if necessary.

(SOC – USD 50,000 / POC – None Budgeted)

3) **V-SAT:** V-SAT communication during expedition. The bandwidth has been upgraded from 512 kbps to 768 kbps to provide better communication services together with network accelerator.

(SOC – USD 150,000 / POC – USD 150,000)

4) **Equipment Maintenance:** Annual maintenance for *Chikyu* Lab measurement instrument including the

X-CT scanner's annual maintenance contract, required by Japanese law.

(SOC – USD 250,000 / POC – USD 150,000)

**5) Wireline Logging:** Contract for wire line logging for Exp.337.

Expedition 337 (SOC – USD 2,032,307 / POC – USD 1,676,855)

**6) LWD:** Contract for LWD for Rapid Response and Exp.338.

Expedition 343 (SOC – USD 474,770 / POC – USD 274,162)

Additional LWD for Exp.343 (SOC – USD 90,155 / POC – USD 338,208)

Expedition 338(Suit -1) (SOC – USD 205,295 / POC – USD 458,259)

**7) Borehole observatories for Exp.343:**

*Background:* Observing the transient temperature and pressures of the Tohoku earthquake.

The March 2011 Mw 9.0 Tohoku earthquake devastated northern Japan with its enormous tsunami, a direct consequence of the large slip extending to the seafloor. Direct measurements of repeat bathymetry record displacement of ~50 m, which is consistent with teleseismic inversions (Fujiwara et al., submitted; Lay et al., 2011). Repeat surveys of the deployment positions of ocean bottom seismometers and pressure sensors imply as much as 80 m of slip on the plate boundary at the trench (Ito et al., 2011). These are the largest values of slip ever measured for a single earthquake. The clear propagation of slip to the trench is also a fundamentally new observation. The well-constrained and extraordinarily large slip at shallow depths provides an unprecedented opportunity to access a high slip patch of the coseismically active fault by drilling to <1 km subseafloor, and to address fundamental questions related to stress, absolute strength, and dynamic friction on an earthquake fault. To this end, a rapid response drilling proposal has been scheduled by IODP to penetrate and instrument the subduction thrust within the zone of high slip. In this proposal we request support for hardware and construction of instrumentation to monitor temperature and pore pressure across the fault zone. The temperature-monitoring instrumentation will be reusable by future IODP expeditions.

Based on the above scientific rationale, the IODP SAS had recognized that the importance of this temperature and pressure observation in situ and the Scientific Technology Panel (STP) made the following consensus.

**STP Consensus Statement 1110E-01: Endorsement of J-FAST rapid proposal**

*The STP reviewed a proposal entitled 'Observing the Transient Temperature and*

*Pressure of the Tohoku Earthquake' submitted by E. Brodsky et al. The STP recognizes that the proposed deployment of the internal Mini-Temperature Logger string (MTLs) to be installed at Site J-FAST1 is an essential component of the borehole observatory in order to achieve the scientific objectives of Expedition 343, Japan Trench Fast Drilling Project (J-FAST). Considering the urgent needs of the rapid response project and both its important scientific objectives and social relevance, the STP endorses the requested funding support (e.g., IODP program fund) for hardware and construction of the MTLs across the ruptured fault of the Tohoku Earthquake. The STP provides comments to the following items:*

1. The STP encourages the J-FAST Project Management Team (PMT) to carefully consider optimizing the

*operational plans for coring, logging, and instrumentation, including contingency options to maximize the science rewards and minimize the technical risks in a challenging drilling environment.*

2. *The STP suggests that it would be advisable to seek the expertise of the best technical persons external to the SAS as well as across the IOs to review the operational plan for J-FAST.*
3. *To detect the target fault accurately, the STP recommends obtaining a wide range of physical property data using a combination of various logging tools. The STP also recommends that the PMT develop optional plans for modifying the MTL spacing in case the location of the fault plane cannot be easily identified by LWD.*
4. *In addition to the MTLs, the STP agrees that it would be advisable to use the more expensive sensors with a longer battery life since these are more likely to help achieve the expedition objectives.*

Temperature String	(SOC– USD 203,674 / POC – None budgeted)
Pressure Package	(SOC – USD 78,255 / POC – None budgeted)
Observatory materials	(SOC – USD 216,306 / POC – None budgeted)

**Other Direct Cost:** (SOC – None Budgeted / POC USD 37,179,005)

**1) Chikyu Operation and Management Contract:** includes crewing, travel, fuel and lubricants, Equipment and supplies (Casing, Wellhead, Bit, Core bit, Packer, Coring equipment, drill pipe, Riser fairing, Drill collar, HWDP, Crossover sub, Stabilizer, Fishing tool, Mud, Cement and other drilling equipment and consumables), port call, subcontractor services for drilling (Mud Engineering service, Waste mud treatment service, Well head service, Cementing service, Casing Running Service, ROV service, Conductor Jetting service, Weather service, etc.), DP equipped supply boat service, watch boat service, helicopter service, shore-base cost, Helibase cost, other logistics cost, normal repair and maintenance, insurance for subcontractor equipment, training for crew, overhead.

**2) Other direct cost:** includes heavy breakdown, insurance (all risks-Hull and Machinery Insurance, P&I insurance and other insurances).

## 7. Engineering Development

- None budgeted under this WBE for FY12.

## 8. Core Curation

### 8.1 Goals

- Provide services in support of IODP core sampling and curation of the core collection archive at the Kochi Core Center Repository (KCC).

### 8.2 Deliverables

- **Policy and Procedures:** Work with other implementing organizations (IOs), the Science Advisory Structure (SAS), and IODP-MI to implement a policy for IODP curation. Work closely with staff to coordinate, standardize and document curatorial procedures for IODP cores and samples including a draft of Micro Bio-related curation procedure (started in FY10).
- **Sample and Curation Strategies:** Plan sample and curation strategies for IODP expeditions and review all shipboard and moratorium-related requests in coordination with the other members of the Sample Allocation Committee (SAC) for each expedition.
- **Sample Requests:** Respond to post-moratorium sample requests from the scientific community.
- **Use of Core Collection:** Promote outreach use of the core collection in collaboration with IO and IODP-MI outreach personnel by providing materials for display at meetings or museums, as well as conducting tours and supporting other outreach activities.
- **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.

### 8.3 Core Curation budget table and justifications

Unit in US \$ (¥85/\$)			
Expense	SOC	POC	Total
Salary and Fringes	310,766	-	310,766
Travel	-	-	-
Supplies	50,000	-	50,000
Shipping	50,000	-	50,000
Communication	4,000	-	4,000
Contractual Services	52,500	15,000	67,500
Equipment	-	-	-
Other Direct Costs	-	-	-
Total Direct Costs	467,266	15,000	482,266
Modified Direct Costs (If applicable)	414,766	-	414,766
Indirect Costs/Administrative Fee	124,430	-	124,430
<b>Total</b>	<b>591,696</b>	<b>15,000</b>	<b>606,696</b>

**Salaries and fringes:** Salaries and fringes for staff in KCC. (See FTE allocation table).

**Travel:** None budgeted

**Supplies:** General office supplies, general laboratory supplies and curatorial tasks.

**Shipping:** Courier and postage for sample shipping, containers and other associated cost for shipping, u-channels.

**Communication:** Telephone charges, Mobile phone charges, fax charges and postage.

**Contractual Services:**

1) **Industrial waste disposal:** Disposal cost for industrial waste designated by the local government. Most core storage-materials and materials used for core transport are in this category.

(SOC – USD 10,000 / POC – None budgeted)

2) **Core management system maintenance:** Annual maintenance cost for the core storage management software being used at KCC. (SOC – USD 15,000 / POC - USD 15,000)

3) **Rental:** Annual rental cost of one forklift used at KCC to move IODP cores from yard to storage and computer for IODP curation staff. (SOC – USD 20,000 / POC – None budgeted)

4) **Brochures, DVD:** KCC's own outreach materials to introduce core data archived in KCC and how to

submit sample requests. (SOC – USD 7,500 / POC – None budgeted)

## 9. Data Management

### 9.1 Goal

- The goals of data management include: management of data supporting IODP activities, management of expedition and post-expedition data, long-term archival, data access, and supporting IT services.

### 9.2 Deliverables

- Expedition Data:** Maintain and manage databases supporting expedition-planning data. Operate and maintain data management and harvesting systems (including QA/QC) for storage and archival of expedition and post-expedition data, including core and sample tracking.
- Program-wide Access Portal:** Provide program-wide access portal including supporting metadata (which must be generated).
- Operation and Maintenance:** Provide operation and maintenance of computer and network systems.
- Software Development:** Provide software development services as needed (excludes analytical systems).
- Evaluation and Modification of J-CORES:** Modification of J-CORES (*Chikyu* onboard Lab. science data base) needs to be performed, including upgrading Java applets, adding new functions to improve QA/QC, and improve connectivity with new lab instruments aboard *Chikyu*.

### 9.3 Data Management budget table and justifications

Unit in US \$ (¥85/\$)			
Expense	SOC	POC	Total
Salary and Fringes	528,122	-	528,122
Travel	-	-	-
Supplies	12,000	-	12,000
Shipping	-	-	-
Communication	-	-	-
Contractual Services	67,929	-	67,929
Equipment	-	-	-
Other Direct Costs	-	-	-
Total Direct Costs	608,051	-	608,051
Modified Direct Costs (If applicable)	540,122	-	540,122
Indirect Costs/Administrative Fee	162,037	-	162,037
<b>Total</b>	<b>770,088</b>	<b>-</b>	<b>770,088</b>

**Salaries and fringes:** Salaries and fringes for staff in CDEX. (See FTE allocation table)

**Travel:** None budgeted

**Supplies:** Computer consumables. (SOC – USD 12,000 / POC – None budgeted)

**Shipping:** None budgeted

**Communication:** None budgeted

**Contractual Services:**

- 1) Annual maintenance costs for IODP specific software (GeoFrame, GeoLog, SeisEarth, etc.) and computer on *Chikyu* and on Land (Wireline/Log data storage/computers, etc.)  
(SOC – USD 67,929 / POC – None budgeted)

## 10. Publications

- None budgeted under this WBE. USIO provide publications support for CDEX expeditions, editing, production and graphics services for all required reports and scientific publication.

## 11. Outreach

### 11.1 Goals

- Continue branding IODP as a cutting-edge international scientific Earth research program.
- Target information outreach to the public via the media (science and general-interest reporters, editors, and producers); scientists-at-large, engineers-at-large, industry scientists; and entities that can effectively partner with IODP to meet research goals.
- Use expeditions and scientific achievements as news hooks to promote scientific ocean drilling as a premiere research methodology; make the connection between emerging scientific knowledge and its positive contribution to society worldwide.
- Build a clearinghouse of information and knowledge about scientific ocean drilling, that is easily accessible online through the IODP web portal.
- Function as an integrated outreach team, with common core messages, and common information collateral.

### 11.2 Deliverables

- Information collateral including news releases, newsletters, expedition brochures, and other program print material, web-based content, and video resources.
- Jointly sponsored exhibitions at science and industry conferences identified as internationally important.
- Town Hall Meetings at major science conferences.
- **Outreach materials:** Produce print materials (expedition news releases, brochures, newsletters), online rich content (images, video, social media), and includes filming on board the *Chikyu*.
- **Exhibition booths:** High profile exhibits at important scientific conferences such as JPGU and for the public.
- **Heightened public and media awareness:** To be achieved through effective promotion of IODP, highlighting:
  - 1) Scientific objectives;
  - 2) IODP's value as a global leader in the collection of Earth systems data,
  - 3) IODP's international cooperation,
  - 4) Expedition scientists participating in IODP research activities,
  - 5) How IODP contributes to solutions for challenges the world faces today. Media visit during the expedition will be considered.

### 11.3 Outreach budget summary and justifications

Unit in US \$ (¥85/\$)			
Expense	SOC	POC	Total
Salary and Fringes	111,452	78,645	190,097
Travel	-	-	-
Supplies	10,000	-	10,000
Shipping	10,000	-	10,000
Communication	-	-	-
Contractual Services	130,000	130,000	260,000
Equipment	-	-	-
Other Direct Costs	-	-	-
Total Direct Costs	261,452	208,645	470,097
Modified Direct Costs (If applicable)	131,452	-	131,452
Indirect Costs/Administrative Fee	39,436	-	39,436
<b>Total</b>	<b>300,888</b>	<b>208,645</b>	<b>509,533</b>

**Salaries and fringes:** Salaries and fringes for staff in CDEX. (See FTE allocation table)

**Travel:** None budgeted.

**Supplies:** General office supplies.

**Shipping:** Shipping for AGU, JPGU etc.

**Communication:** None budgeted.

**Contractual Services:**

1) **WEB Maintenance:** Annual maintenance/licensing/rental costs for *CHIKYU HAKKEN* Website.

<http://www.jamstec.go.jp/Chikyu/eng/index.html> (SOC – USD 10,000 / POC – None Budgeted)

2) **WEB for expedition promotion:** To launch a web sites for each expedition for promotion etc.

(SOC – USD 70,000 / POC – USD 130,000)

3) **Outreach publication:** To publish bi-annual news letter “*CHIKYU HAKKEN* News Letter” both in English and in Japanese etc. (SOC – USD 50,000 / POC – None budgeted)

## 12. Operational Achievement

### 12.1. Expedition Highlights

Three IODP Expeditions were completed during FY11: Expedition 331 “Deep Hot Biosphere” in the Okinawa Trough which has been completed in the very beginning of FY11, Expedition 332 “Riserless Observatory” for installation of the first permanent observatory in the NanTroSEIZE and Expedition 333 subduction input and Heat Flow.

### 12.2 Expedition 331 “Deep Hot Biosphere”

Expedition 331 aimed to drill and sample hydrothermally active mounds to obtain evidence for microbial communities, including their biomass and ecosystem roles and functions. Drilling and coring operations were conducted at five sites in the Iheya North field in the Okinawa Trough: C0013, C0014, C0015, C0016 and C0017. Two of the drilled boreholes were fitted with casing for future installation of observatories for chemical and microbial studies.

A solely riserless operation, this expedition used the HPCS, ESCS, the recently developed EPCS as well as the Baker-Hughes INTEQ 4-inch coring systems to retrieve cores from a tight cluster of sites near active hydrothermal vents in the Okinawa Trough. Elevated H<sub>2</sub>S presence, high temperatures and difficult conditions for

coring made this a challenging Expedition.

Seven holes were drilled at Site C0013. The first five were drilled to shallower-than-expected depths, as high formation temperatures melted the plastic core liners. At the deepest Hole, C0013E reaching 54.5 mbsf, a guide base was set and the hole was cased with perforated steel casing to produce an artificial hydrothermal vent. *Chikyu* later returned to this site to core two short holes using aluminum core liners.

High temperatures were encountered at Site C0014 as well, but after picking up aluminum core liners for the 2.44-inch coring systems, Hole C0014G was extended to 136.7 mbsf. A guide base and casing was set at Hole C0014G, constructing a second artificial vent. Site C0015 was briefly visited and cored to 7 mbsf before the mid-expedition crew change in Nago Bay.

Site C0016 was visited twice for coring with the industrial four-inch coring system. The first attempt, at the top of the hydrothermal mound 'North Big Chimney' Hole C0016A, did not recover any core as the barrel broke upon retrieval and left the bit and core catcher in the hole. A third guide base was set at the foot of the same mound, and C0016B was cored there to a total depth of 45 mbsf. The casing and capping operation there, to finish the third artificial vent, was the last operation performed during Expedition 331. Between Holes C0016A and C0016B, *Chikyu* visited Site C0017, coring four holes, the deepest among them being Hole C0017D, cored to 150.6 mbsf. Using a combination of APCT-3 downhole temperature measurements and high-temperature thermal stickers, a good temperature profile could be established for this site.

### 12.3 Expedition 332 (NanTroSEIZE Stage 2: Riserless Observatory 2)

Integrated Ocean Drilling Program (IODP) Expedition 332 "Riserless Observatory" was a technically complex expedition targeting the shallow portion of C0002 for installation of the first permanent observatory in the NanTroSEIZE project. Nine scientists (including Co-Chiefs and EPM), from the USA, Japan, and Germany with an observer from Petrobras, participated in the 48-day expedition (25 October to 11 December 2010). IODP Exp 332 followed up, and expanded, initial observatory operations begun during IODP Expedition 319 in 2009. The complexity of this expedition was mainly focused on engineering work, including (1) retrieval of a temporary observatory instrument (i.e. SmartPlug) installed during Expedition 319 at IODP Site C0010, which penetrates the shallow "megaspall" fault in the midforearc; (2) deployment of an upgraded temporary observatory (i.e. GeniusPlug) at Site C0010; and (3) installation of a permanent observatory at IODP Site C0002 in the outer Kumano Basin, at the location of planned future deep riser drilling.

The first days of the expedition were interrupted by the approach of Typhoon Chaba, which necessitated shortening the initial port call, and evacuating the D/V *Chikyu* out of the path of the typhoon. After returning, the first few weeks focused on exchanging the SmartPlug temporary observatory with an upgraded GeniusPlug, both attached to a retrievable casing packer above the screened megaspall fault zone at Site C0010. The SmartPlug recovery was successful despite the strong Kuroshio Current, which can be attributed to an efficient reduction of vortex-induced vibration (VIV) on the drill string by attaching ropes. Times series data recovered from the self-contained instrument include seafloor and formation pressure as well as four independent temperature records from the fault zone and the overlying seafloor reference. Tentative analysis of the data proves the effective seal of the bridge plug; dampened pressure amplitudes in the tight, slightly overpressured formation; and identification



of prominent earthquake and tsunami events in the 15 month record (23 August 2009–7 November 2010). The SmartPlug was replaced with a GeniusPlug, which is an extension of the now-proven SmartPlug design, having a 30 cm extension chamber an OsmoSampler for collecting fluids for geochemical analysis and a flow-through osmotic colonization system for microbiological study. The system was installed at a depth that placed the addendum in the center of the screened cased section across the megasplay fault.

At Site C0002, somewhat upslope of Site C0010, a new hole was drilled with logging while drilling (LWD) and cased for placement of a long-term borehole monitoring system (LTBMS). The LTBMS is comprised of a CORK assembly with a hydrogeological unit measuring pressure at four depth levels as well as a broadband seismometer, volumetric strainmeter, tiltmeter, geophones, and a thermistor string. The key goals include pore pressure monitoring in the upper accretionary prism a series of measurements in the homogeneous sediments (strain, tilt, seismicity, and pressure) in the transition zone, and temperature and pressure monitoring in the overlying Kumano Basin sediments. The lower portion of the assembly is isolated from the overlying ocean by a swellable packer. Part of the instrument string below was cemented to couple the strainmeter and seismometer to the formation/casing. The electronic data cables and sensors on the LTBMS head were extensively tested using the remotely operated vehicle before and after cementing, and all were successful. The LTBMS will be connected to the Dense Oceanfloor Network System for Earthquakes and Tsunamis (DONET) real-time seafloor cabled network in Fall 2011.

#### 12.4 Expedition 333 (NanTroSEIZE Stage 2: Subduction Input 2 and Heat Flow)

Expedition 333 was carried out in the Kumano Basin, off the coast of Kii Peninsula during 12 December 2010 and 10 January 2011 as the continuation of the Expedition 332. The expedition involves drilling and coring of subduction inputs and heat flow measurements to better understand geophysical properties driving large subduction earthquakes at the margin of the Philippine Sea Plate, which slides beneath the Eurasian Plate. In addition, drilling, coring and temperature measurements were made at the Site C0018 to understand the relationship between earthquake occurrence and submarine landslides as part of the Ancillary Project Letter.

Expedition 333 started off its operations with drilling and coring at Site C0018 (water depth: 3084.35 meters) to a depth of 314.2 mbsf. It's thought that these sediments are transported in response to submarine landslides. The drilling penetrated six layers of submarine landslide deposits known as mass transport deposits (MTD), with the lowest layer with 62 meters thickness. Immediately above and below this thick layer were deposits of volcanic ash commonly found around Japan. The age analysis of the upper ash indicates that the landslide causing this thick sedimentation probably has occurred about one million years ago.

In an attempt to explore the initial state of subduction inputs, drilling and coring was made at Site C0011 (water depth: 4050.5 m) and Site C0012 (water depth: 3510.5 m) in Shikoku Basin, an outer region of the Nankai Trough. Drilling was performed down to a depth of 380 mbsf at C0011 and 180 mbsf at C0012 for the sediments. In addition, coring continued underlying basaltic basement at C0012 to a depth of 630.5 mbsf. Stable and continuous drilling allowed recovery of cores in good condition, which permits analyses of stratigraphic sequence.

Formation temperature measurements were made at all sites with APCT3 during piston coring in high-resolution.

The results revealed a higher heat flow at C0012 than that at C0011, providing valuable clues to understanding the fluid circulation at input sites.

# IODP Annual Program Plan

FY2012

[Appendix D](#)



# **Integrated Ocean Drilling Program**

## **Program Plan**

**US Fiscal Year 2012**

## **Mission Specific Platforms**

## **ECORD Science Operator**

April 2011



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## 1 Introduction

ESO, the ECORD Science Operator, is contracted to carry out Mission Specific Platform (MSP) operations on behalf of IODP and ECORD (European Consortium for Ocean Research Drilling) as required by the IODP Science Advisory Structure (SAS). ESO is co-ordinated by the British Geological Survey (BGS) and additionally comprises the University of Bremen and the European Petrophysics Consortium (EPC). EPC members are the University of Leicester, the University of Montpellier and RWTH Aachen University.

As the term MSP implies, each expedition is provided with a suitable drilling platform on a case-by-case basis, and each has to be individually contracted. The platforms will commonly have limited accommodation, and restricted deck space for laboratories, so that only a portion of the invited Science Party is able to participate offshore (often referred to as the Offshore Team). Consequently, only ephemeral measurements are made at sea, and the cores are split, described, and subjected to minimum and appropriate standard IODP measurements at an Onshore Science Party held at the IODP Bremen Core Repository (BCR) shortly after the offshore phase.

**ESO, on instruction from ECORD, will aim to implement at least one MSP Expedition by the end of the program. The costs presented in this plan assume that FY2012 activities will centre around the planning of at least one of the following: Proposal #548 Chicxulub Impact Crater, Proposal #716 Hawaiian Drowned Reefs, Proposal #672 Baltic Sea Paleoenvironment, and Proposal #758 Atlantis Massif Seafloor Processes. Scoping of all four proposals will continue for the remainder FY2011, the results of which will guide planning in FY2012. POC funds for a drilling platform have been requested to allow ESO to enter a contract in FY2012 for offshore operations in FY2013. The cost of a hazard site survey for the Chicxulub proposal was included as a POC cost in the FY2011 budget, although the site survey operation is likely to be conducted in FY2012 if it is required. ESO aim to implement the chosen expedition in FY2013.**

In addition, post-expedition work on the New Jersey Shallow Shelf Expedition #313 and the Great Barrier Reef Environmental Changes Expedition #325 will continue. ESO will also continue to participate in planning for the new program post-2013.

## 2 Budget Summary Table

Description	SOC	POC	Total
Management and Administration	\$ 839,071	\$ 286,593	\$ 1,125,664
Technical, Engineering and Science Support	\$ 1,562,556	\$ 9,857,625	\$ 11,420,181
Engineering Development	\$ -	\$ -	\$ -
Core Curation			
Subtotal Core Curation	\$ 83,429	\$ -	\$ 83,429
Subtotal DSDP/ODP Core Redistribution	\$ -	\$ -	\$ -
Data Management	\$ 336,884	\$ -	\$ 336,884
Publications	\$ -	\$ -	\$ -
Education	\$ -	\$ -	\$ -
Outreach	\$ 140,700	\$ -	\$ 140,700
<b>Total</b>	<b>\$ 2,962,639</b>	<b>\$ 10,144,218</b>	<b>\$ 13,106,858</b>
<b>Notes &amp; currency conversions: 28 April 2011</b> £1= \$1.65 €1= \$1.47			

**Table 1.** Budget summary table for FY2012.



### 3 Organizational Structure

For composition and structure of the ECORD Science Operator, see Appendix I.

Position			% Work Breakdown Elements								% Totals		
Name	Position	Office	M & E	T E S	E D	C C	D M	P u b	E d	O t r e h	SOC	POC	Other
R Gatliff	ESO Chair	BGS	23.3	-	-	-	-	-	-	-	14.9	8.4	76.7
D Smith	Operations & Logistics Manager	BGS	23.3	23.3	-	-	-	-	-	-	25.6	20.9	53.5
D McInroy	Staff Scientist / Science Manager	BGS	65.1	14.0	-	-	-	-	-	4.7	44.2	39.5	16.3
A Stevenson	Outreach Manager	BGS	11.5	-	-	-	-	-	-	15.8	23.9	3.4	72.7
C Cotterill	Staff Scientist	BGS	4.7	37.2	-	-	-	-	-	-	20.9	20.9	58.1
D Dove	Trainee Staff Scientist	BGS	-	4.7	-	-	-	-	-	-	2.3	2.3	95.3
S Green	Trainee Staff Scientist	BGS	-	4.7	-	-	-	-	-	-	2.3	2.3	95.3
C Graham	Database Manager	BGS	18.6	-	-	-	4.7	-	-	-	14.0	9.3	76.7
M Mowat	Database Assistant	BGS	-	-	-	-	20.5	-	-	-	20.5	0.0	79.5
G Tulloch	Drilling Co-ordinator / Operations	BGS	-	18.6	-	-	-	-	-	-	2.3	16.3	81.4
D Wallis	Electronics Engineer	BGS	-	11.6	-	-	-	-	-	-	2.3	9.3	88.4
E Gillespie	Assistant	BGS	12.4	7.4	-	-	-	-	-	-	9.9	9.9	80.2
K Kilpatrick	Web Design & Update	BGS	-	-	-	-	-	-	-	7.0	7.0	0.0	93.0
U Röhl	Onshore Op. Man. / Chief Curator	MARUM, Bremen	27.3	4.5	-	2.3	-	-	-	-	34.1	0.0	65.9
H Kuhlmann	Assistant Onshore Op. Manager	MARUM, Bremen	45.5	18.2	-	4.5	-	-	-	-	68.2	0.0	31.8
W Hale	Curatorial Scientist	MARUM, Bremen	-	4.5	-	18.2	-	-	-	-	22.7	0.0	77.3
A Wülbers	Curatorial Scientist	MARUM, Bremen	-	11.4	-	13.6	-	-	-	-	25.0	0.0	75.0
H-J Wallrabe-Adams	Data Repository Manager	MARUM, Bremen	-	-	-	-	50.0	-	-	-	50.0	0.0	50.0
Data Assistant 1 TBD	Onshore Science Party Database	MARUM, Bremen	-	-	-	-	20.5	-	-	-	20.5	0.0	79.5
A Gerdes	Outreach	MARUM, Bremen	-	-	-	-	-	-	-	15.9	15.9	0.0	84.1
L Schnieders	Man. Support / QAQC	MARUM, Bremen	27.3	20.5	-	-	-	-	-	-	47.7	0.0	52.3
M Kölling	Geochemist	MARUM, Bremen	-	4.5	-	-	-	-	-	-	4.5	0.0	95.5
V Lukies	Man. Support / Logistics	MARUM, Bremen	13.6	9.1	-	-	-	-	-	-	22.7	0.0	77.3
Bremen Admin	Administrator	MARUM, Bremen	36.4	13.6	-	-	-	-	-	-	50.0	0.0	50.0
T Westerhold	Petrophysicist	MARUM, Bremen	-	9.1	-	-	-	-	-	-	9.1	0.0	90.9
Student 1 TBD	Student	MARUM, Bremen	-	-	-	15.9	-	-	-	-	15.9	0.0	84.1
S Davies	EPC Manager	U. of Leicester	27.3	-	-	-	-	-	-	-	27.3	0.0	72.7
S Draper	Administrator	U. of Leicester	100.0	-	-	-	-	-	-	-	100.0	0.0	0.0
Petrophysicist 1 TBD	Petrophysicist	U. of Leicester	18.2	81.8	-	-	-	-	-	-	100.0	0.0	0.0
Petrophysicist 2 TBD	Petrophysicist	U. of Leicester	-	81.8	-	-	9.1	-	-	9.1	100.0	0.0	0.0
Petrophysicist 3 TBD	Petrophysicist	U. of Leicester	-	90.9	-	-	9.1	-	-	-	100.0	0.0	0.0

**Table 2.** FTE Allocation for all WBEs.

**Note:** Services provided by the University of Bremen are in general not limited to the individuals listed but may be covered in part by support scientists, technicians and students, so that the percentages shown for specified individuals are in some cases higher than anticipated. Similarly, services will be allocated to appropriate personnel within the BGS pool of staff. Services provided by EPC are allocated to the petrophysicists employed in the three member organisations as appropriate.

## **4 Offshore Operations**

### **4.1 Introduction**

Planning of at least one of the following proposals will take place in FY2012, with a view to implementation in FY2013:

- 1) Proposal #548 Chicxulub Impact Crater;
- 2) Proposal #716 Hawaiian Drowned Reefs;
- 3) Proposal #672 Baltic Sea Paleoenvironment;
- 4) Proposal #758 Atlantis Massif Seafloor Processes.

The decision on which Expedition to implement will depend on the results of scoping efforts currently taking place in FY2011, and will primarily depend on platform costs, platform availability, available seabed drill technology and permitting.

If Chicxulub is chosen as the scheduling target for FY2013, hazard site surveys over the proposed sites will be required. In 17m water depth, this proposal requires a lift boat or jack-up rig. Funds for this hazard site survey were included in the ESO FY2011 budget, and, if required, will be implemented in FY2012, depending on planning/permitting progress.

Only planning for future expeditions and platform funds are costed in this FY2012 Annual Program Plan. POC funds for a drilling platform have been requested to allow ESO to enter a contract in FY2012 for offshore operations in FY2013. No Mission Specific Platform offshore operation or Onshore Science Party will take place in FY2012.

### **4.2 Chicxulub: Drilling the K-T Impact Crater**

#### ***4.2.1 Proposed Operations (assuming Chicxulub proposal is to be implemented)***

The 2 proposed primary sites and 1 alternative site have been approved by SSP and preliminarily reviewed by EPSP. Initial scoping of this project has included discussions with the lead proponents on the scientific and technical requirements of the proposal, and the investigation of permitting issues with the proponents, ICDP and other institutes with experience of Mexican permitting. ESO will continue attempts to obtain the necessary permits for both the hazard site survey and scientific drilling with the Mexican authorities. A tender to provide a hazard site survey in FY2012, possibly combined with a tender to provide a drilling vessel and coring services to core in water depths of 17 metres, with penetrations not exceeding 1500 metres in FY2013, will be issued. It is anticipated that a technique similar to that used for the New Jersey Shallow Shelf Expedition will be employed, but the precise methodology will be dependent upon the eventual contract.

A proposal has been submitted to ICDP by the proponents, requesting up to \$1.45M of additional funding. A decision is expected to be made by ICDP in July.

#### ***4.2.2 Experiments***

No experiments are anticipated.

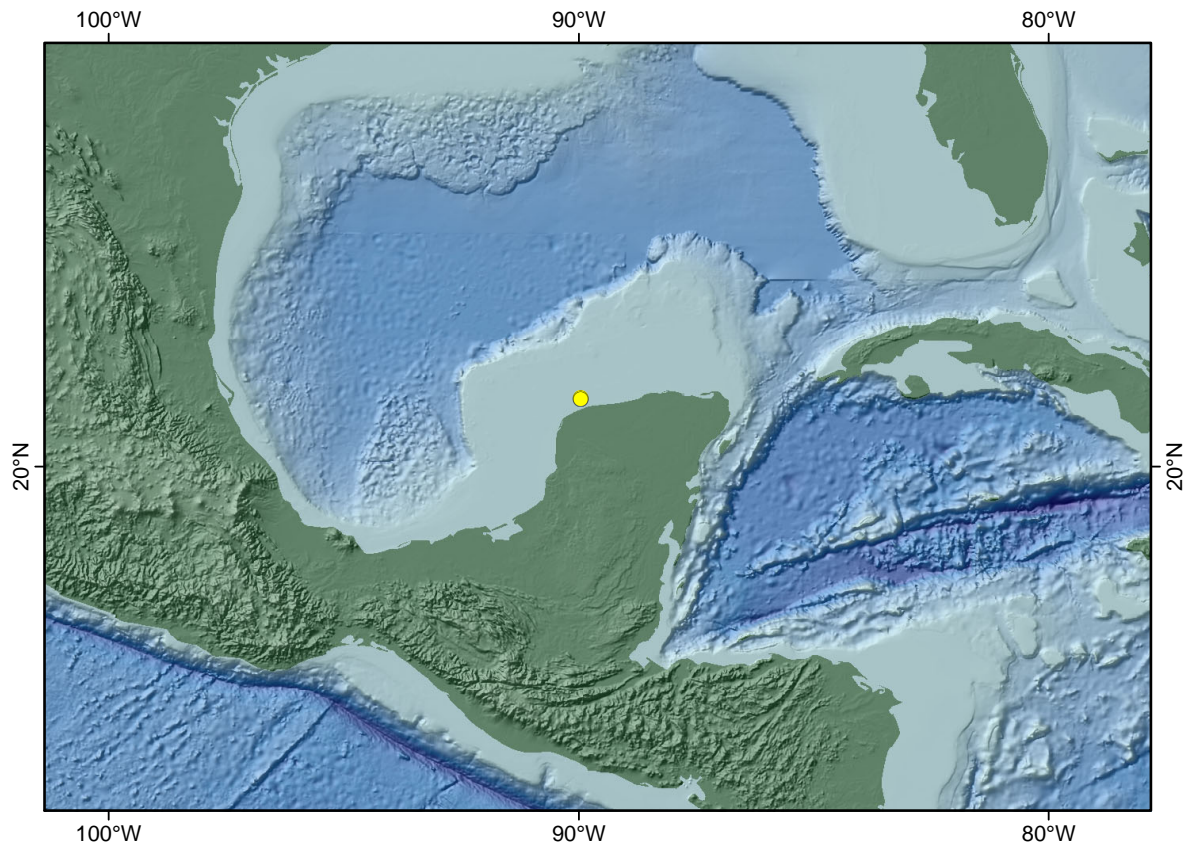
#### **4.2.3 Environment and Safety**

ESO will contract a geotechnical site investigation of the seabed in the vicinity of the proposed sites, and will seek an independent gas-hazard survey if required. ESO will investigate and apply for all necessary permits to work in Mexican waters.

#### **4.2.4 Logistics**

No major logistics are envisaged, other than the mobilisation of the hazard site survey which will be handled by the contracted survey company.

#### **Site Location**



**Figure 1.** Bathymetric map of the area around the Yucatán Peninsula, showing the position of the proposed drill sites for which hazard site surveys are required.

### **4.3 Hawaiian Drowned Reefs / Baltic Sea Paleoenvironment / Atlantis Massif Seafloor Processes**

#### **4.3.1 Proposed Operations**

There will be no operations relating to these expeditions as the main activities will be scoping and planning. A Project Management Team meeting was held in FY11 with the lead proponents of the Hawaiian Drowned Reefs expedition and ESO is continuing to

investigate the necessary permits for working in Hawaiian waters. ESO will be in contact with the lead proponents for the Baltic Sea Paleoenvironment and the Atlantis Massif Seafloor Processes expeditions and Project Management Team meetings will be held as appropriate in FY12.

#### ***4.3.2 Experiments***

No experiments are anticipated.

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

ESO will investigate and apply for all necessary permits to work in Hawaiian waters, or the Baltic Sea.

#### ***4.3.4 Logistics***

Not applicable – planning only.

### **4.4 Onshore Science Party (OSP)**

The Onshore Science Party for the chosen Expedition may take place at the Bremen Core Repository during late FY2013 or FY2014, and so no costs are presented for a Mission Specific Platform Onshore Science Party in this budget.

### **4.5 Expedition Budget Summary**

Not applicable, as no expedition will be implemented in FY2012.

## 5 Management and Administration

### 5.1 Goals

Plan, coordinate (with other IODP-related entities), oversee, review, and report on IODP activities.

### 5.2 Deliverables

1. Annual Program Plan: develop and assure implementation.
2. Quarterly and Annual Reports: develop quarterly and annual reports, including financial reports.
3. Report and Liaise: report and liaise with funding agencies and with IODP-related entities (e.g., SAS meetings), ECORD bodies, Program Member Offices and other national organizations and participate in IODP-MI Task Forces, working groups, etc.
4. Contract services: provide contract services for IODP-related activities.

### 5.3 Budget Table

#### Management & Administration

Expense Category	SOC	POC	Total
Salary and Fringes	\$ 592,071	\$ 166,593	\$ 758,664
Travel	\$ 192,000	\$ 93,000	\$ 285,000
Supplies	\$ 15,000	\$ 6,000	\$ 21,000
Shipping	\$ -	\$ -	\$ -
Communication	\$ -	\$ -	\$ -
Contractual Services	\$ -	\$ -	\$ -
Equipment	\$ 15,000	\$ 6,000	\$ 21,000
Other Direct Costs			
Training	\$ 25,000	\$ 15,000	\$ 40,000
<b>Total Direct Costs</b>			
Modified Direct Costs (If applicable)			
<b>Indirect Costs/Administrative Fee</b>			
<b>Total</b>	\$ 839,071	\$ 286,593	\$ 1,125,664

**Table 3.** Management and Administration budget table.

### 5.4 Budget Justification

#### *Salaries and fringes*

Portions of salaries at standard institution rates, including overheads.

POC - BGS salaries are split between POCs and SOC's (see FTE Allocation Table).

SOC - Bremen and EPC are all SOC's.

***Travel***

Transportation, *per diem* and accommodation for all tasks noted above, including ESO internal meetings, IOs meetings, ECORD Council meetings, ESSAC meetings, meetings of other IODP bodies including panels and committees, IODP-MI task forces, operational reviews and a range of appropriate scientific conferences (including conference fees) and workshops.

POC – Percentage of BGS activity

BGS	18 non-Europe journeys @\$3,500.
	15 Europe journeys @\$2,000.

SOC – All Bremen and EPC activity, and a percentage of BGS activity.

BGS	12 non-Europe journeys @\$3,500.
	9 Europe journeys @\$2,000.
Bremen	12 non-Europe journeys @\$3,500.
	12 Europe journeys @\$2,000.
EPC	12 non-Europe journeys @\$3,500.
	12 Europe journeys @\$2,000.

***Supplies***

General office supplies.

POC – for BGS.

SOC – for Bremen and EPC.

***Shipping***

None budgeted.

***Communication***

None budgeted.

***Contractual services***

None budgeted.

***Equipment***

Miscellaneous items, upgrades etc.

POC – BGS.

SOC – Bremen and EPC.

***Other Direct Costs***

Training for all partners.

## **6 Technical, Engineering and Science Support**

### **6.1 Goals**

Manage, coordinate, and perform the activities and provide the services, materials, platforms, and ship and shore-based laboratories necessary to support the IODP expeditions.

### **6.2 Deliverables**

1. Planning for either the Chicxulub, Hawaii, Baltic Sea or Atlantis Massif will take place. The decision on which Expedition to implement will depend on the results of scoping efforts taking place in FY2011, and will mostly be controlled by platform costs and availability, available seabed drill technology and permitting.
2. If Chicxulub is chosen as the scheduling target for FY2013, hazard site surveys over the proposed sites will be required and will be implemented in FY2012, depending on planning/permitting progress. Funds for the hazard site survey were requested and approved in the FY2011 budget.
3. Provision of a drilling platform for offshore operations in FY2013.
4. Reporting: provide expedition-related reports and content for expedition publications (e.g., Scientific Prospectus, Preliminary report, etc.).
5. Expedition Staffing: provide selection and support for scientific staffing and Co-chief Scientist selection for each scheduled expedition. Provide support for shipboard and shore-based technical personnel and activities.
6. Logistics Support: provide for expedition and shore-based activities including procurement, shipping, equipment and supplies.
7. Analytical Systems: provide and maintain shipboard and shore-based analytical facilities and associated QA/QC protocols. Ensure effective capture and transfer of expedition data to database systems.
8. Downhole and Core Logging: provide for the delivery of downhole logging services aboard each respective platform including back-off/severing services where needed. Provide facilities for shipboard and shore-based physical property measurements and associated QA/QC protocols. Ensure effective capture and transfer of expedition downhole and core Petrophysics data to database systems.
9. Engineering Support: provide engineering support for maintaining and developing shipboard and shore-based drilling, coring, and downhole systems including third-party developments.

### 6.3 Budget Table

#### Technical, Engineering and Science Support

Expense Category	SOC	POC	Total
Salary and Fringes	\$ 601,656	\$ 139,225	\$ 740,881
Travel	\$ 77,500	\$ 22,000	\$ 99,500
Supplies	\$ 73,400	\$ -	\$ 73,400
Shipping	\$ -	\$ -	\$ -
Communication	\$ -	\$ -	\$ -
Contractual Services	\$ 40,000	\$ -	\$ 40,000
Equipment	\$ 750,000	\$ -	\$ 750,000
Other Direct Costs			
Bremen laboratory upkeep and certification	\$ 20,000	\$ -	\$ 20,000
Platform cost and contingency	\$ -	\$ 9,680,000	\$ 9,680,000
Drilling consultancy	\$ -	\$ 16,400	\$ 16,400
<b>Total Direct Costs</b>			
Modified Direct Costs (If applicable)			
<b>Indirect Costs/Administrative Fee</b>			
<b>Total</b>	<b>\$ 1,562,556</b>	<b>\$ 9,857,625</b>	<b>\$ 11,420,181</b>

**Table 4.** Technical, Engineering and Science Support budget table.

### 6.4 Budget Justification

#### *Salaries and fringes*

Portions of salaries at standard institution rates, including overheads for planning of future MSP Expeditions.

POC – Most BGS costs are split 50/50 between POCs and SOC, except for non-scientific work, which is fully allocated to POCs.

SOC – All Bremen and EPC costs.



***Travel***

Scoping, planning and preparation will require a variety of meetings among ESO staff, with Co-chief Scientists, scientists, scoping groups (including Project Management Team Meetings), discussion with actual or potential contractors, for contractual issues and staff exchanges.

POC – All BGS planning travel, 50% of BGS offshore operations.

BGS            4 non-Europe journeys @\$3,500.  
                     4 Europe journeys @\$2,000.

SOC – All Bremen and EPC travel, 50% of BGS offshore operations.

BGS            4 non-Europe journeys @\$3,500.  
                     4 Europe journeys @\$2,000.

Bremen        3 non-Europe journeys @\$3,500.  
                     6 Europe journeys @\$2,000.

EPC            6 non-Europe journeys @\$3,500.  
                     6 Europe journeys @\$2,000.

***Supplies***

POC – None budgeted.

SOC – Advance purchase of lab and office consumables for offshore curation and sampling (pore water chemistry, gas chemistry, microbiology, sedimentology and paleontology).

***Shipping***

POC & SOC – None budgeted.

***Communication***

POC & SOC – None budgeted.

***Contractual services***

POC – None budgeted

SOC – Cost of MSCL (-S and -XYZ) servicing and maintenance. This includes software and electronic updates and spare parts as required and covers costs for licence fees and safety testing for the MSCL source. Logging equipment servicing and maintenance is also covered.

***Equipment***

POC – None budgeted.

SOC – Logging-related computer hardware is required continue compatibility with logging tools. Funds for a Geotek MSCL XCT are requested. This X-ray core imaging system collects linear digital X-ray images on whole core. For rock cores, as opposed to soft

sediment cores, where core can shift within the liner when rotated, Geotek recommend their option where the X-ray source and detector rotate, rather than rotating the core. This then allows CT data to be collected. Users can visualise and record three-dimensional structures within the cores and rotational images can be used for computed tomographic (CT) reconstructions. For three of the four proposed expeditions in particular (Chixculub, Hawaii Drowned Reefs and Atlantis Massif Seafloor Processes) X-ray CT imaging would provide vital quantitative data and information about core quality, orientation of fractures, and in the case of Hawaiian Drowned Reefs, coral orientation, that could inform core-splitting, sampling strategies and further analyses ahead of the Onshore Science Party. Funds are requested for FY12 because there is a long lead in time for the Geotek MSCL XCT to be ordered and built in time for an expedition in FY13.

### ***Other Direct Costs***

POC – Platform cost and contingency: for BGS (NERC) to be able to sign a contract in FY2012 for an offshore operation in FY2013, finance for the drilling platform must be in place. Therefore, the FY2012 budget includes funds for a drilling platform. The exact cost of the platform will remain unknown until: 1) scoping is complete and the expedition is chosen, and 2) tender responses for a drilling contract are received. POC costs also include drilling consultancy for planning of future expeditions.

SOC – Bremen University laboratory upkeep and certification. This includes regular checks, certification, and if needed, spare parts for all exhaust air from labs and especially lab hoods, gas line pipes, electric lines, water pipes, cleaning and performance checks of sediment traps in lab sinks, waste water tests for unauthorized chemicals, lack of oxygen monitoring in labs, checks for X-ray equipment (XRF, XRD labs), overall laboratory equipment performance tests and certificates (e.g. chemical lab), balances calibration service, certified element standards, certified sediment standards, software updates, licence fees, etc., for IODP labs, proportionate for labs at Bremen University (e.g. used for Onshore Science Parties) and mobile lab containers sent to MSP expeditions.

SOC - EPC – funds requested to cover the fees and costs associated with gaining permits to import register and use the MSCL source on offshore expeditions in any given territory/territorial waters. These costs would be incurred in FY12 in readiness for an expedition in FY13. This figure is based on expenditure on licences and permits for the source during the Great Barrier Reef expedition in FY10.

## **7 Engineering Development**

Not applicable.

## **8 Core Curation**

### **8.1 Goals**

Provide services in support of IODP core sampling and curation of the MSP core collection archive at the Bremen Core Repository (BCR), including all curatorial aspects in relation to scoping and implementing of future MSP expeditions for both the offshore phase as well as the Onshore Science Party.

### **8.2 Deliverables**

1. Policy and Procedures: work with other implementing organizations (IOs), the Science Advisory Structure (SAS), and IODP-MI to further improve the implementation of a policy for IODP curation, namely in respect to cores and samples from MSP expeditions. Work closely with staff from other core repositories to coordinate, standardize and especially document curatorial procedures for IODP-MSP cores and samples.
2. Sample and Curation Strategies: plan sample and curation strategies for the Chicxulub, Hawaii Drowned Reefs, Baltic Sea Paleoenvironment, and Atlantis Massif Seafloor Processes proposals and review all shipboard and moratorium-related requests in coordination with the other members of the Sample Allocation Committee (SAC) once an expedition will be implemented.
3. Sample Requests: respond to moratorium and post-moratorium MSP-related sample requests from the scientific community.
4. Use of MSP Core Collection: promote the outreach use of the core collection including from MSP expeditions in collaboration with EMA, other ESO and IODP-MI outreach personnel by providing materials for display at conferences or museums, provide expertise for the preparation of new potential replica cores from MSP expeditions, as well as conducting tours at the repositories, and supporting other mainly European outreach activities.
5. Meetings: host and/or participate in annual IODP curatorial staff meeting to ensure program-wide consistency also for MSP cores. Act as ESO liaison to meetings with the other IOs, IODP-MI, and the SAS, as appropriate.

### 8.3 Budget Table

#### Core Curation

Expense Category	SOC	POC	Total
Salary and Fringes	\$ 67,929	\$ -	\$ 67,929
Travel	\$ 7,000	\$ -	\$ 7,000
Supplies	\$ 2,500	\$ -	\$ 2,500
Shipping	\$ 6,000	\$ -	\$ 6,000
Communication	\$ -	\$ -	\$ -
Contractual Services	\$ -	\$ -	\$ -
Equipment	\$ -	\$ -	\$ -
Other Direct Costs	\$ -	\$ -	\$ -
(Please identify)			
<b>Total Direct Costs</b>			
Modified Direct Costs (If applicable)			
<b>Indirect Costs/Administrative Fee</b>			
Subtotal Core Redistribution			
<b>Total Core Curation</b>	\$ 83,429	\$ -	\$ 83,429

**Table 5.** Core Curation budget table.

### 8.4 Budget Justification

#### *Salaries and fringes*

SOC – Portions of salaries at standard institution rates, including overheads.

(See organizational chart and position and percent effort table in the “Introduction” section). The services provided by the University of Bremen are in general not limited to the individuals listed in the Table “FTE Allocation for all WBEs”, but may be covered in part by support scientists, technicians and students, so that the percentages shown for specified individuals are in some cases higher than anticipated.

POC – None budgeted.

#### *Travel*

SOC – This category is an estimated projection for travel to meetings related to IODP curatorial topics. It may include visits to the Gulf Coast and Kochi Repositories for technical and training exchange, as well as cooperative work.

Bremen 2 non-Europe journeys @ \$3,500

POC – None budgeted.

#### *Supplies*

SOC – The bulk of this category is for materials related to sampling needs. This includes plastic scoops and tubes, u-channels, Pmag cubes, Styrofoam plugs, sample bags, shipping boxes, labels and ink bands for the printers; tape for the d-tubes and for packing, etc. The amount is loosely based on past needs for MSP core sampling, but future sampling activity

levels are difficult to assess. We can only assume that sampling levels will increase as the size of our collection increases.

POC—None budgeted.

### ***Shipping***

SOC – These costs are primarily for courier shipping of samples (incl. u-channels, and archive core halves for non-destructive measurements requests) worldwide to the requesting investigators. As with the *Supplies* category, the amount depends on the amount of sampling activity, which certainly will continue to increase with the size of our collection.

POC – None budgeted.

## 9 Data Management

### 9.1 Goals

The goals of data management include: management of data supporting IODP activities, management of expedition and post-expedition data, long-term archival, access to data, access to data via SEDIS and SMCS and supporting IT services.

### 9.2 Deliverables

1. Expedition Data: maintain and manage expedition databases. Operate and maintain data management systems for future MSP Expeditions and load post-moratorium data to the WDC-MARE and LDEO (downhole log data) long-term data archives.
2. Upload sample and curation data to the SMCS system and other metadata to SEDIS.
3. Operation and maintenance: provide operation and maintenance of computer and network systems.
4. Software Development: provide software development services as required for expeditions (excludes analytical systems).
5. Cooperate on the development of common IODP standards via the DMCG.

### 9.3 Budget Table

#### Data Management

Expense Category	SOC	POC	Total
Salary and Fringes	\$ 176,884	\$ -	\$ 176,884
Travel	\$ 39,000	\$ -	\$ 39,000
Supplies	\$ 6,000	\$ -	\$ 6,000
Shipping	\$ -	\$ -	\$ -
Communication	\$ -	\$ -	\$ -
Contractual Services	\$ 75,000	\$ -	\$ 75,000
Equipment	\$ 40,000	\$ -	\$ 40,000
Other Direct Costs (Please identify)	\$ -	\$ -	\$ -
<b>Total Direct Costs</b>			
Modified Direct Costs (If applicable)			
<b>Indirect Costs/Administrative Fee</b>			
<b>Total</b>	\$ 336,884	\$ -	\$ 336,884

**Table 6.** Data Management budget table.

## **9.4 Budget Justification**

### ***Salaries and fringes***

Portions of salaries at standard institution rates, including overheads.

POC – None budgeted.

SOC – All costs.

### ***Travel***

ESO database group meetings, Data Management Coordination Group meetings, data management liaison and travel to offshore expedition.

POC – None budgeted.

SOC – All travel.

BGS	5 non-Europe journeys @\$3,500.
	6 Europe journeys @\$2,000.
Bremen	3 non-Europe journeys @\$3,500.
	3 Europe journeys @\$2,000.

### ***Supplies***

POC – None budgeted.

SOC – Computer consumables.

### ***Shipping***

None budgeted.

### ***Communication***

None budgeted.

### ***Contractual services***

POC – None budgeted.

SOC – Offshore DIS support and developments; continuous upgrading is planned in line with IODP-MI requirements, including VCD development.

### ***Equipment***

POC – None budgeted.

SOC – ESO computer infrastructure upgrade and maintenance, and Bremen computer infrastructure upgrade and maintenance. BSCW licence for communication and data transfer.

***Other Direct Costs***

None budgeted.



## **10 Publications**

Not applicable to ESO. All MSP publications are handled by the USIO at TAMU, College Station.

## **11 Outreach**

### **11.1 Goals**

1. Continue branding IODP as a cutting-edge international Earth science research program.
2. Target informational outreach to the public via the media (science and general-interest reporters, editors and producers); scientists-at-large, industry scientists; and entities that can effectively partner with IODP to meet research goals.
3. Use expeditions and scientific achievements as news hooks to promote scientific ocean drilling as a premiere research methodology; make the connection between emerging scientific knowledge and its positive contribution to society worldwide.
4. Build a clearinghouse of information and knowledge about scientific ocean drilling, that is easily accessible online through the IODP web portal.
5. Function as an integrated outreach team, with common core messages and common informational collateral.

### **11.2 Deliverables**

1. Informational collateral including news releases, newsletters, expedition brochures, other program print material, web-based content and video resources.
2. Jointly sponsored exhibitions at science and industry conferences identified as internationally important (e.g. AGU, EGU, IGC).
3. Town Hall Meetings at major science conferences (AGU, EGU).
4. Informational products to use in raising awareness of the objectives and outcomes of the recent MSP expeditions as well as future MSP Expeditions.

### 11.3 Budget Table

#### Outreach

Expense Category	SOC	POC	Total
Salary and Fringes	\$ 100,700	\$ -	\$ 100,700
Travel	\$ 28,000	\$ -	\$ 28,000
Supplies	\$ 12,000	\$ -	\$ 12,000
Shipping	\$ -	\$ -	\$ -
Communication	\$ -	\$ -	\$ -
Contractual Services	\$ -	\$ -	\$ -
Equipment	\$ -	\$ -	\$ -
Other Direct Costs	\$ -	\$ -	\$ -
(Please identify)			
<b>Total Direct Costs</b>			
Modified Direct Costs (If applicable)			
<b>Indirect Costs/Administrative Fee</b>			
<b>Total</b>	\$ 140,700	\$ -	\$ 140,700

**Table 7.** Outreach budget table.

### 11.4 Budget Justification

#### *Salaries and fringes*

Portions of salaries at standard institution rates, including overheads.

POC – None budgeted.

SOC – All costs.

#### *Travel*

Attend outreach meetings associated with the recent New Jersey Shallow Shelf (onshore) and Great Barrier Reef Environmental Changes (offshore and onshore) expeditions, and for forthcoming expeditions (Chixculub, Hawaii Drowned Reefs, Baltic Sea Paleoenvironment and Atlantis Massif Seafloor Processes) as appropriate. Attend conferences (EGU, AGU, IGC) and other E&O activities.

POC – None budgeted.

SOC – All costs.

BGS	3 non-Europe journeys @\$3,500.
	3 Europe journeys @\$2,000.
Bremen	1 non-Europe journeys @\$3,500.
	4 Europe journeys @\$2,000.

***Supplies***

POC – None budgeted.

SOC – Printing brochures for expeditions, support of booths, materials etc.

***Shipping, Communication, Contractual services, Equipment and Other Direct Costs***

None budgeted.

### Appendix I – Multiple-year comparison of ESO costs

<b>FY2009</b>	<b>Budget</b>	<b>Expenditure</b>	<b>Variance</b>	<b>Comments</b>
SOCs				
Management & Administration	587500	557027	30473	
Technical, Engineering & Science	3123200	2984202	138998	
Core Curation	72300	72310	-10	
Data Management	340000	296547	43453	
Publications	0	0	0	
Logging	0	0	0	
Education & Outreach	130200	98460	31740	
<b>Totals</b>	<b>4253200</b>	<b>4008546</b>	<b>244654</b>	
POCs	<b>19449200</b>	<b>9424637</b>	<b>10024563</b>	Carried over for GBREC

<b>FY2010</b>	<b>Budget</b>	<b>Expenditure</b>	<b>Variance</b>	<b>Comments</b>
SOCs				
Management & Administration	781100	616000	165100	
Technical, Engineering & Science	3494100	3420500	73600	
Core Curation	79000	75700	3300	
Data Management	472300	460600	11700	
Publications				
Logging				
Education & Outreach	152200	98200	54000	
<b>Totals</b>	<b>4978700</b>	<b>4671100</b>	<b>307600</b>	
POCs	<b>11856300</b>	<b>8733400</b>	<b>3112900</b>	Carried over for future MSPs

<b>FY2011</b>	<b>Budget</b>	<b>Expenditure</b>	<b>Variance</b>	<b>Comments</b>
SOCs	<b>2524000</b>			POCs include Chicxulub hazard survey costs. FY11 expenditure on track.
POCs	<b>1538900</b>			
<b>FY2012</b>				
SOCs	<b>2962600</b>			POCs include platform costs for FY2013 Expedition.
POCs	<b>10144200</b>			
<b>FY2013</b>				
SOCs	<b>4285200</b>			Expedition year.
POCs	<b>4360000</b>			

Multiple year comparison of ESO costs.

## Appendix II – The composition of the ECORD Science Operator

The European Consortium for Ocean Research Drilling (ECORD) is primarily a group of European national funding agencies, although membership is not confined to Europe. ECORD has a Council that has established a structure whereby its executive arm is the ECORD Managing Agency (EMA), operated in France by CNRS-INSU with Catherine Mével as Director.

EMA is responsible for interacting with MEXT/NSF and for collecting funds from ECORD members, thus acting as the ECORD banker. Funds are then distributed to:

- NSF as membership contributions.
- ESO as POCs and SOC for MSP drilling projects.
- ESSAC, the European Science Support Advisory Committee.
- EMA itself and other relevant costs.

ESO is contracted by EMA to carry out MSP operations as required by IODP, providing both Platform Operating Costs (POCs) and Science Operating Costs (SOCs).

ESO collaborates with other IOs and is represented at all SAS committees and most IODP-MI Task Forces. It is also represented at ECORD Council meetings, and at ESSAC from which it receives advice and also provides scientists with information about operations and MSP capability.

The following are the key areas of responsibility within ESO:

**ESO Chair.** Overall co-ordination of ESO is the responsibility of Robert Gatliff at the British Geological Survey (BGS).

**Science Manager.** Everyday responsibility for ESO management and for administering the contracts with EMA and IODP-MI, and the BGS/NERC subcontracts with the Universities of Leicester and Bremen lies with David McInroy.

**Operations Manager.** Responsibility for all operational matters, including coring and the running of offshore expeditions, lies with David Smith at BGS.

**Management of Curation and Laboratory Facilities.** The provision and management of both onshore and offshore laboratory facilities, and all curatorial matters, fall under the purview of Dr. Ursula Röhl of the University of Bremen.

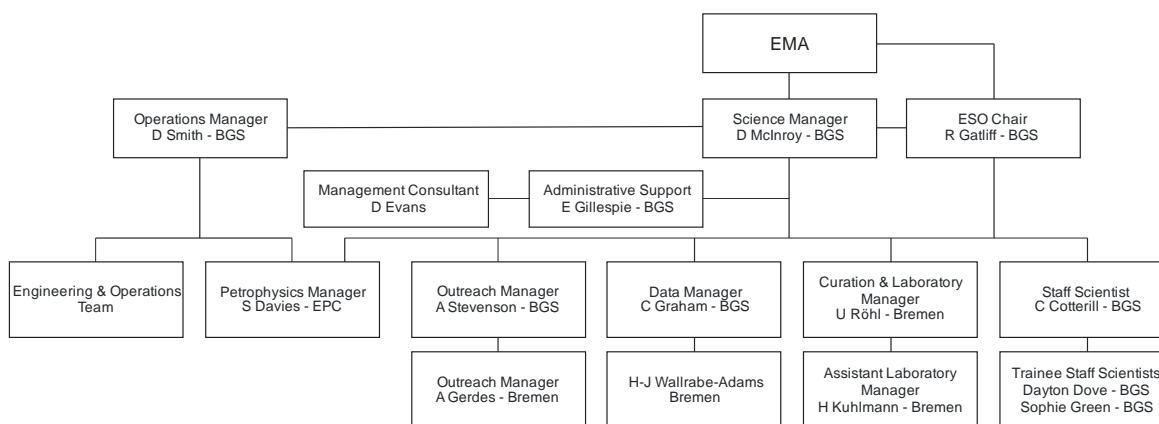
**Petrophysics Manager.** The management of all downhole logging and core petrophysics operations (including multi-sensor track measurements) fall within the auspices of the European Petrophysics Consortium (EPC) co-ordinated at the University of Leicester (UK) by Dr. Sarah Davies.

The other institutes that make up the EPC are:

- Université de Montpellier (France)
- RWTH Aachen University (Germany)

**Data Management** is the responsibility of Colin Graham of BGS. The long-term data repository for MSP data will be WDC-MARE/PANGAEA, and this aspect of data management is being overseen by Dr. Hans-Joachim Wallrabe-Adams at the University of Bremen. ESO co-operate with the Data and Information Section of the Operational Support Group ICDP, at GFZ Potsdam.

**Education and Outreach** for ESO is managed by Alan Stevenson of BGS



**Figure 2.** The overall management structure of ESO.

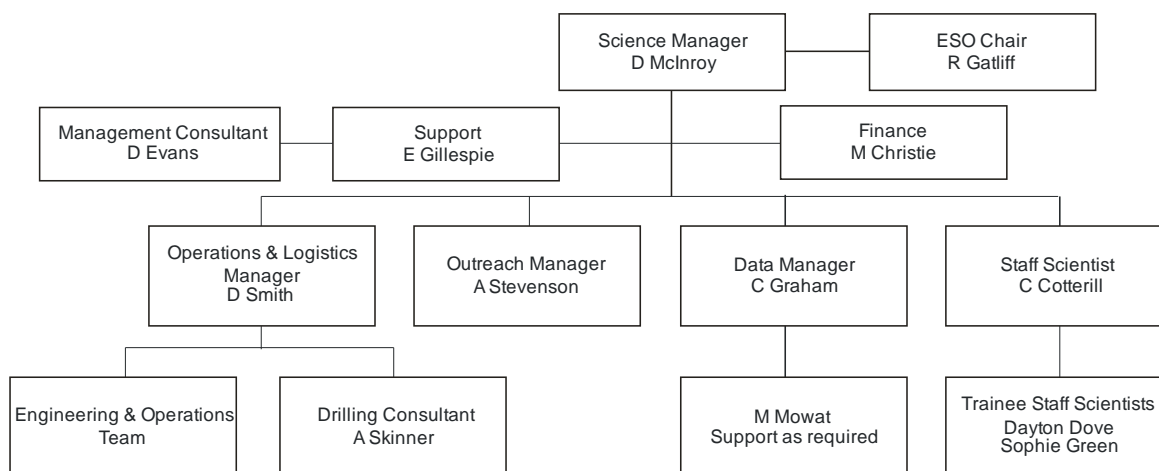
### British Geological Survey

In addition to the personnel named in Section 3.1, there are additional personnel contributing to both the scientific and operational branches of ESO; general support to both branches is provided by Eileen Gillespie. Most personnel are identified by name, but it should be borne in mind that ESO can call upon the input of any staff in BGS, wherein lies a vast range of expertise. Dan Evans is also available as a consultant.

In the scientific branch, there is currently one Staff Scientist (Carol Cotterill) and two trainee Staff Scientists (Dayton Dove and Sophie Green). In addition David McInroy will complete his responsibilities as the New Jersey Shallow Shelf Expedition Staff Scientist.

Colin Graham is able to take advantage of computing and database support in BGS, as well as that provided by the University of Bremen. Alan Stevenson works closely with EMA and is also able to use wider outreach expertise in BGS and NERC (Natural Environment Research Council) in the UK as well as from Albert Gerdes at the University of Bremen in Germany who takes delegated responsibility for outreach during Onshore Science Parties.

In the operational branch, David Smith leads a team that includes several engineers, and deals with contracts, clearances and permits, and operational planning. The operations and engineering team includes a pool of electronics engineers, mechanical engineers and technicians. Ali Skinner is also available as a consultant.



**Figure 3.** Structure of the BGS component of ESO.

### University of Bremen

The Bremen Core Repository (BCR) has been an IODP/ODP facility for more than sixteen years and has a relatively new facility on the university campus that provides extended refrigerated storage space (including a new reefer available in 2011) as well as large laboratories and offices, including laboratories of the MARUM - Center for Marine Environmental Sciences at the University of Bremen. There is also a continuing close cooperation with other laboratories of Bremen University in the Geoscience Department (GeoB), as well as the Max Planck Institute for Marine Microbiology (MPI), both nearby on the campus. Bremen University's MARUM (a union of the Excellence Cluster "The Ocean in the Earth System" and of the Research Center Ocean Margins, RCOM) and Geosciences Department are very extensive and diverse, with abundant support scientists, technicians, and students.

The roles that individuals carry out in ESO are distinct from those related to a separate IODP-MI contract to operate the BCR. The services provided by the University of Bremen are in general not limited to the individuals listed here, but may be covered by support scientists, technicians and students. Key ESO personnel are:

**Ursula Röhl** is the ESO Curation & Laboratory Manager as well as being the IODP Curator and Head of the IODP Repository/Laboratory Infrastructure Group at MARUM. She oversees all operational curation-related issues and manages both the offshore and onshore analyses according to IODP policies. She mainly serves as the ESO liaison to the Science Technology Panel (STP).

**Holger Kuhlmann** acts as the Assistant Laboratory Manager and is the ESO deputy for Ursula Röhl. He mainly acts as the local Logistics Expert, both in preparations for Onshore Science Parties and for Bremen mobile laboratories for offshore operations.

**Walter Hale** is the Superintendent of the BCR. His role in ESO is to contribute to Onshore Science Party planning and execution, and to act as an advisor to Ursula Röhl in her role as SAC member for MSP expeditions.

**Alex Wülbers** is the Curatorial Scientist at the BCR and takes over the role of superintendent in the absence of Walter Hale. He provides logistical and practical services for MSP operations and acts as curator on MSP cruises, responsible for the proper handling and curating of core according to official IODP policy.

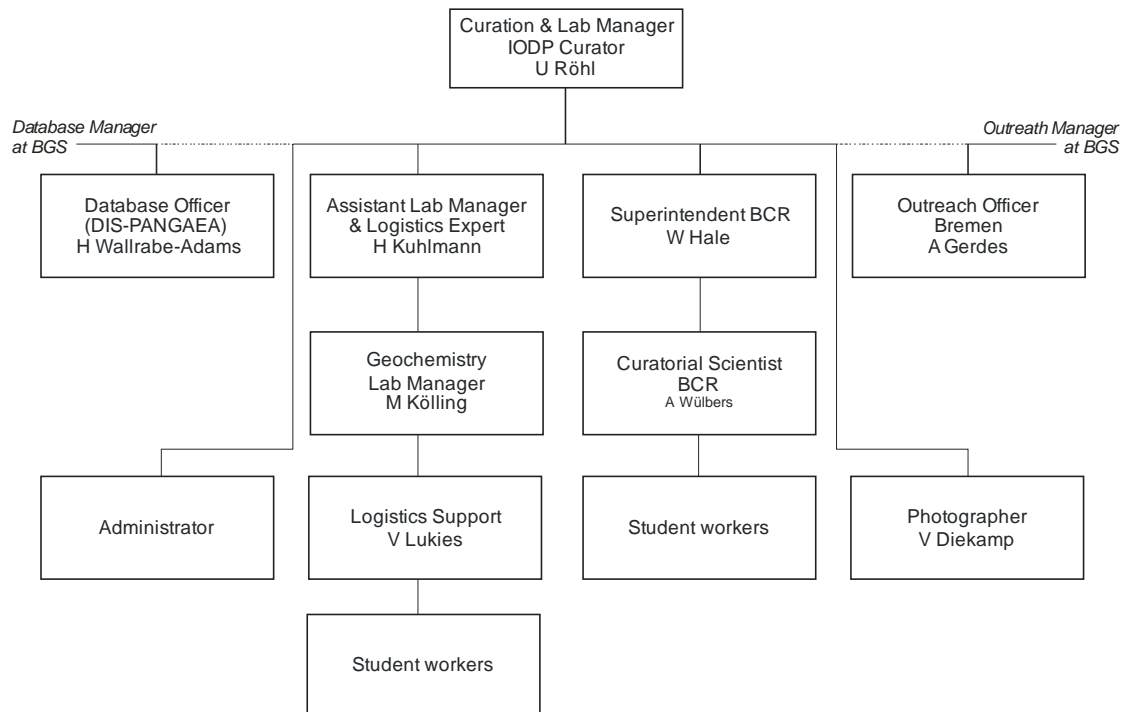
**Hans-Joachim Wallrabe-Adams** is the ESO Database Officer at the University of Bremen. He contributes to all aspects of data management, but is specifically responsible for the long-term management of MSP data in WDC-MARE/PANGAEA.

**Martin Kölling** is the Geochemistry Laboratory Manager for the MARUM of Bremen University. He provides advice on geochemistry issues and assists in preparing offshore geochemistry laboratories (instruments and methods) and oversees geochemical analyses during Onshore Science Parties.

**Albert Gerdes** is the Outreach Manager at MARUM. He works closely with the ESO Education and Outreach Manager on all aspects of E&O, but takes delegated authority for E&O during Onshore Science Parties.

**Vera Lukies** assists with logistics support and petrophysical properties including core logging.

**Volker Diekamp** is the MARUM photographer and will serve for ESO Bremen as needed, mainly preparation and execution of Onshore Science Party, but also for year-round photographing in relation to BCR-ESO.



**Figure 4.** Structure of the Bremen component of ESO.



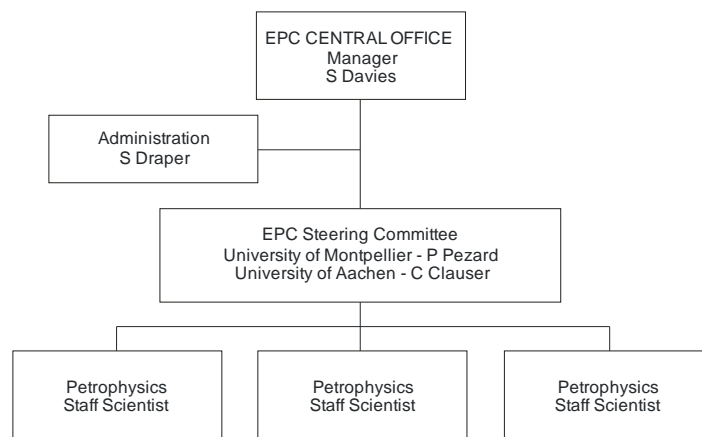
## European Petrophysics Consortium (EPC)

EPC was formed specifically to provide downhole and core logging, and scientific petrophysical research services for MSP operations. The EPC central office is located at the University of Leicester and is responsible for the management of the EPC, negotiating and representing EPC within ESO and IODP, and for negotiating and dealing with external organization as required. The University of Leicester holds the primary contract with the BGS/NERC (Natural Environment Research Council) and provides sub-contracts to the Universities of Montpellier and Aachen. The sub-contracts are issued on an annual basis, following signing of the primary contract with NERC upon which funding is solely dependent.

A steering committee meets at least once a year, at a time convenient to all parties. This steering group is composed of the Manager from the University of Leicester, Philippe Pezard (University of Montpellier), Christoph Clauser (University of Aachen) and co-opted members from each institute as required. Where appropriate, representatives from the other ESO partners may attend as liaisons.

The three institutes are responsible for providing Petrophysics Staff Scientist(s) and ESO Petrophysicist for each MSP expedition, which involves participation in both the offshore and onshore parts of an MSP expedition. In the case of the Onshore Science Party, additional staff from the three institutes may be required to assist.

Selection of the Petrophysics Staff Scientist for an individual expedition is decided upon by the steering committee, and selected individuals are required to attend a management meeting at the University of Leicester and to undertake, where appropriate, training related to science-based skills and/or health and safety (e.g. offshore training courses). Depending on the structure, duration and objectives of the IODP expedition, the Petrophysics Staff Scientist is normally assisted by one or more EPC members, as required to meet the scientific objectives.



**Figure 5.** Structure of the EPC component of ESO.

# IODP Annual Program Plan

FY2012

[Appendix E](#)



**Integrated Ocean Drilling Program  
Program Plan  
US Fiscal Year 2012**

**IODP core repository services**

**Bremen Core Repository  
(BCR)**



**Submitted to IODP-MI April 2011**

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## 1 Introduction

The Bremen Core Repository (BCR) is the European IODP core repository and one of the three IODP core repositories, which also include the Gulf Coast Core Repository (GCR) in College Station, Texas, and the Kochi Core Center (KCC) in Kochi, Japan. Since no change of personnel is foreseen at our facility, we are confident in our ability to continue to carry out the required work in a highly professional manner. However, we have experienced a significant increase in workload with the growth of our core collection to include the legacy cores from the former ECR.

The BCR presently contains more than 141 km of deep-sea cores (drilled in the Atlantic & Arctic Oceans, Mediterranean & Black Seas) from 83 legs/expeditions. In its 17 years of operation around 643,000 samples (representing about 2800 individual requests) have been taken by the visitors and IODP/ODP personnel and distributed worldwide.

Bremen University's refrigerated core storage area, racks, and modern laboratories for sampling are made available to the IODP at no cost.

## 2 Budget Summary Table

Budget Summary Table 1 (US dollars)

Description	SOC	POC	Total
Management and Administration			
Technical, Engineering and Science Support			
Engineering Development			
Core Curation	348,259		348,259
Data Management			
Publications			
Outreach			
<b>Total</b>	<b>348,259</b>		<b>348,259</b>

### 3 Organizational structure

For composition and structure of the BCR, see Appendix I

#### 3.1 FTE Allocation for all WBEs

Position			% Work Breakdown Elements								% Totals		
Name	Position	Office	M&A	TESS	ED	CC	DM	Pub	Ed	Orch	SOC	POC	Other
Walter Hale	BCR Superintendent	BCR				80					80		
Alex Wülbbers	BCR Curatorial Scientist	BCR				80					80		
Full Time Employees						1.6					1.6		

**Table.** FTE Allocation for all WBEs

**4 Expedition Operations**

N/A

**5 Management and Administration**

N/A

**6 Technical and Engineering and Science Support**

N/A

**7 Engineering Development**

N/A

**8 Core Curation**

- 8.1 Goals:** Provide services in support of IODP core sampling and curation of the continuously expanding core collection archive at the Bremen Core Repository (BCR).

We anticipate that all IODP cores from the Atlantic (north of 60°S latitude) and Arctic Oceans, as well as Mediterranean and Black Seas, will continue to be sent to the BCR for storage, sampling and curation. The BCR will provide core repository services and continuity in its operation that will allow for the planning of sampling parties and the ability to liaise within the IODP structure, including advising the science community of current sampling policies. This capability will be maintained even in years when no cores are drilled in the Atlantic or Arctic Oceans. We also provide advice to scientists on database techniques (internet queries) to help them to determine the best strategies for their sample requests, employing principally the corelog and past sampling data, as well as shipboard splice and meters-composite-depth (mcd) data.

Bremen will continue to operate the repository in accordance with IODP repository and curatorial policies and procedures, and by close interaction and communication with the appropriate IODP-MI representatives. We will adhere to these policies with respect to both core curation and sampling activities. Our major tasks for the coming fiscal year will continue to include curation and preservation of the cores, providing samples to scientists as needed and hosting sample parties when appropriate and necessary. In addition to the split core materials, the BCR also manages the curation and distribution of various special collections, including returned sample material (residues), thin sections, smear slides, frozen standard microbiology samples, and whole-round geochemistry cores.

We assume that, for the immediate future, sample requests relating to cores stored in Bremen for samples from USIO-drilled expeditions prior to Expedition 314 will continue to be submitted to IODP through the online request submission form at <http://iodp.tamu.edu/curation/samples.html> and then forwarded to us for processing.

For Expedition 314 and beyond, scientists who want to request samples will register in the Sample Material Curation System (SMCS) and enter their requests directly into the system and we will receive automatic notification. For samples requested from MSP expeditions 302 or 313, requests will be sent directly to the BCR curator, Dr. Ursula Röhl (through the PDF form at [http://www.iodp.org/index.php?option=com\\_docman&task=doc\\_download&gid=44](http://www.iodp.org/index.php?option=com_docman&task=doc_download&gid=44)).

The Sample Material Curation System (SMCS) has also been adopted for use with future MSP expeditions beginning with Exp. 325. When the issues with this system are identified and corrected, it may be implemented as the single IODP-wide system for sample request submission, including post-moratorium requests. However, a new Sample and Data Request Management (SDRM) system is being developed by the Consortium for Ocean Leadership that could well turn out to be more practical than correcting the current problems in SMCS. This system is being tested and evaluated by the staff of all three repositories.

Sampling will be carried out or overseen by repository staff who are competent and well-trained in the procedures, or by visiting scientists themselves, who will receive guidance and assistance from the staff as necessary for the successful completion of their requests, as well as instructions for maintaining the integrity of the core material during sampling. Samples will normally be sent by a reputable courier service so that the shipments can be reliably tracked. Visiting scientists, however, will be allowed to hand-carry their samples if they desire.

Sampling parties are typically carried out shortly (3 to 5 months) after the end of a cruise and require special organizational and planning efforts. We also provide logistical services, including making hotel reservations and visitor information. Visiting scientists are also be provided with office space to carry out short-term planning and obligatory writing of preliminary results, meeting rooms, and laboratory space at the repository for working with the core material. We also recognize the close oversight and help in planning that is required in designing a successful sampling plan for large groups of scientists who are sampling from a single expedition, and have the experience to help the scientists in this planning.

## 8.2 Deliverables for FY2012

**8.2.1 Policy and Procedures:** Work with other implementing organizations (IOs), the Science Advisory Structure (SAS), and IODP-MI to implement a policy for IODP curation. Work closely with the staff of the Gulf Coast Repository (GCR) and the Kochi Core Center (KCC) to develop, coordinate, standardize and document curatorial and sampling procedures for IODP cores and samples.



**8.2.2 Sample and Curation Strategies:** Plan sampling and curation strategies for moratorium-related requests in coordination with the other members of the Sample Allocation Committee (SAC) for each expedition.

At present, two expeditions are scheduled by the USIO for the Atlantic Ocean: IODP Exp. 336 *Mid-Atlantic Microbiology* from mid-Sept to mid-Nov 2011 and IODP Exp. 339 *Mediterranean Outflow* from mid-Nov 2011 to mid-Jan 2012. The cores from these two expeditions will be for the BCR.

The cores from IODP Exp. 340 *Lesser Antilles Volcanism and Landslides* will be stored at the GCR (pers. comm. Nicole Stroncik, Expedition Project Manager for IODP Exp. 340).

Core curation for MSP expeditions is not dealt with under this contract.

**8.2.3 Sample Requests:** Respond to post-moratorium sample requests from the scientific community.

All samples will be entered into a database that is openly accessible for the general public (via internet) for post-moratorium samples.

Since March 1, 2010, the BCR has been inputting all samples taken from any cores stored at the BCR into the Curation-DIS database, regardless of the original operator for the expedition. We have also imported from the JANUS database all past samples from cores that are stored at the BCR. So now it is possible for the international scientific community to access information relating to all samples from BCR cores from a single internet data site (BCR Data Portal: <http://iodp.wdc-mare.org/>). For the offshore and moratorium periods of Mission Specific Platform (MSP) projects of the ECORD Science Operator (ESO), samples will be entered into the Offshore DIS database, which is a compact version of Curation DIS developed specifically for each project, and is merged with the Curation DIS version soon after the end of the Onshore Science Party (OSP).

Non-MSP sample data from BCR cores taken on or prior to March 1, 2010 will be retrievable from both the BCR Data Portal and the Janus web sample report query form, but data relating to samples taken after this date will only be accessible through the BCR Portal.

The MSP data archive is the World Data Center for Marine Environmental Sciences (WDC-MARE) PANGAEA database.

**8.2.4 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 and professional advice for display at meetings or museums, as well as conducting public or school-group tours, and supporting other USIO outreach activities.

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

**8.2.6 Legacy Documentation:** The project for redistribution of cores among the three IODP repositories according to geographic location has now been completed, with the result that the BCR is now the home to all existing geographically designated DSDP and ODP cores (and special collections) as well as material to be retrieved under future IODP expeditions.

### 8.3 Budget

**Budget Summary Table 2 (US dollars)**

<b>Core Curation</b>	<b>SOC</b>	<b>POC</b>	<b>TOTAL</b>
Subtotal Core Curation	348,259		348,259
Salary and Fringes	192,626		192,626
Travel	6,550		6,550
Supplies	9,580		9,580
Shipping	40,000		40,000
Communication			
Contractual Services			
Equipment			
Other Direct Costs			
<b>Total Direct Costs</b>	<b>248,756</b>		<b>248,756</b>
Modified Direct Costs (If applicable)			
<b>Indirect Costs/Administrative Fee</b>	<b>99,503</b>		<b>99,503</b>
<b>Total Core Curation</b>	<b>348,259</b>		<b>348,259</b>

#### Justification:

##### **Salary and Fringes**

SOC - This category is the equivalent of 1.6 FTE positions, and is used to cover 80% of the salaries of W. Hale and A. Wülbers. Due to an expected standard 4 per cent annual salary increase, based on our (80%) FY10 salary expenditure of \$178,093.82, prorated for 2 years to 2012, we have added \$14,532.46 to this category.

POC—None budgeted.

##### **Travel**

SOC - This category is an estimated projection for travel to meetings related to IODP curatorial topics. It may include visits to the Gulf Coast and Kochi Repositories for technical and training exchange, as well as cooperative work.

POC—None budgeted.

##### **Supplies**

SOC - The bulk of this category is for materials related to sampling needs. This includes plastic scoops and tubes, u-channels, Pmag cubes, Styrofoam plugs, sample bags, shipping boxes, labels and ink bands for the printers; tape for the d-tubes and for packing, etc. The amount is loosely based on past needs, but future sampling activity levels are difficult to

assess. We can only assume that sampling levels will increase as the size of our collection increases.

POC—None budgeted.

### **Shipping**

SOC - These costs are primarily for courier shipping of samples worldwide to the requesting investigators. As with the *Supplies* category, the amount depends on the amount of sampling activity, which certainly will continue to increase with the size of our collection. In FY12 we are expecting cores from two JR expeditions into the Atlantic. In addition, the growing importance of microbiological investigations to the program will likely also have an impact on these costs, because shipping samples in a frozen state is more expensive by an order of magnitude. It is impossible to predict how many of these kinds of shipments will be required, and therefore what the costs will be, even for the near future. Furthermore, the increasing use of non-destructive scanning instruments by many institutes to analyze DSDP/ODP/IODP archive-half core material is creating an uncertain situation with regard to shipping large volumes of core sections around the world, with costs running into the thousands of dollars per shipment. Therefore, we would like to have at least \$40,000.00 for this category, and hope that this amount is not exceeded.

POC—None budgeted.

### **Indirect costs**

This is a flat-rate cost for university and institute administration costs and materials of 40%, based on the high-maintenance nature of this contract and extraordinary size of the operation.

**Budget Comparison Table 3**

<b>Core Curation</b>	<b>FY10 final accounts</b>	<b>FY11*</b>	<b>FY12</b>	<b>FY13 outlook</b>
Subtotal Core Curation	\$ 286,438.67	\$ 338,779.34	\$ 348,258.79	\$ 377,553.86
Salary and Fringes	\$ 178,093.82	\$ 185,085.24	\$ 192,626.28	\$ 200,331.33
Travel	\$ 1,615.30	\$ 6,050.00	\$ 6,550.00	\$ 7,300.00
Supplies	\$ 3,303.55	\$ 10,850.00	\$ 9,580.00	\$ 12,050.00
Shipping	\$ 21,586.38	\$ 40,000.00	\$ 40,000.00	\$ 50,000.00
Communication				
Contractual Services				
Equipment				
Other Direct Costs				
<b>Total Direct Costs</b>	\$ 204,599.05	\$ 241,985.24	\$ 248,756.28	\$ 269,681.33
Modified Direct Costs (If applicable)				
<b>Indirect Costs/Administrative Fee</b>	\$ 81,839.62	\$ 96,794.10	\$ 99,502.51	\$ 107,872.53
Subtotal DSDP/ODP Core Redistribution	\$ 13,214.81	\$ 15,000.00	\$ -	\$ -
Salary and Fringes	\$ 11,012.34	\$ 12,500.00	\$ -	\$ -
Travel				
Supplies	\$ -	\$ -	\$ -	\$ -
Shipping	\$ -	\$ -	\$ -	\$ -
Communication				
Contractual Services				
Equipment				
Other Direct Costs				
<b>Total Direct Costs</b>	\$ 11,012.34	\$ 12,500.00	\$ -	\$ -
Modified Direct Costs (If applicable)				
<b>Indirect Costs/Administrative Fee</b>	\$ 2,202.47	\$ 2,500.00	\$ -	\$ -
<b>Total Core Curation</b>	\$ 286,438.67	\$ 353,779.34	\$ 348,258.79	\$ 377,553.86

### **Background:**

Our total annual budget is strongly influenced by the “*Salary and Fringes*” category. These costs, as mentioned above, steadily increase annually by around 4% in terms of our actual cost in

EUROS (€). Due to the strongly fluctuating USD/€ exchange rate over the past years, however, the dollar amount shown in the annual comparison table does not reliably reflect this steady cost increase (e.g., between FY10 and FY12). The other cost categories are of course also affected, to a lesser degree, by the exchange rate fluctuations.

\*Please note that the FY11 budget total contains \$15,000.- for continued work on the Core Redistribution Project (carried over from FY10).

We are in the process of purchasing/upgrading our stock of supplies in FY11, but will likely need to purchase more to accommodate the sampling parties to be held in FY12.

## **9 Data Management**

N/A

## **10 Publications**

N/A

## **11 Outreach**

MARUM at Bremen University has its own PR department. Its personnel include a former science writer with expertise in TV production and print media work. In cooperation with European, Japanese, and US-American colleagues this department is actively involved in outreach activities for past European Mission Specific Platform Operations that were initiated and organized by ECORD, the European Consortium for Ocean Research Drilling, and ESO, the ECORD Science Operator, as it was for Expedition "Great Barrier Reef Environmental Change" in 2010. The expedition web sites for MSP expeditions are hosted on one of our servers (Exp. 302 and 310) and mirror sites of the ESO WebPages are in place (Exp. 313 and 325).

On an international level, IODP-related outreach activities were also conducted at the annual assemblies of the European Geosciences Union (EGU), which from 2005 through 2011 took place in Vienna, as well as of the American Geophysical Union (AGU) in San Francisco. Town Hall Meetings were held, booths occupied, and outreach sessions organized.

## Appendix I

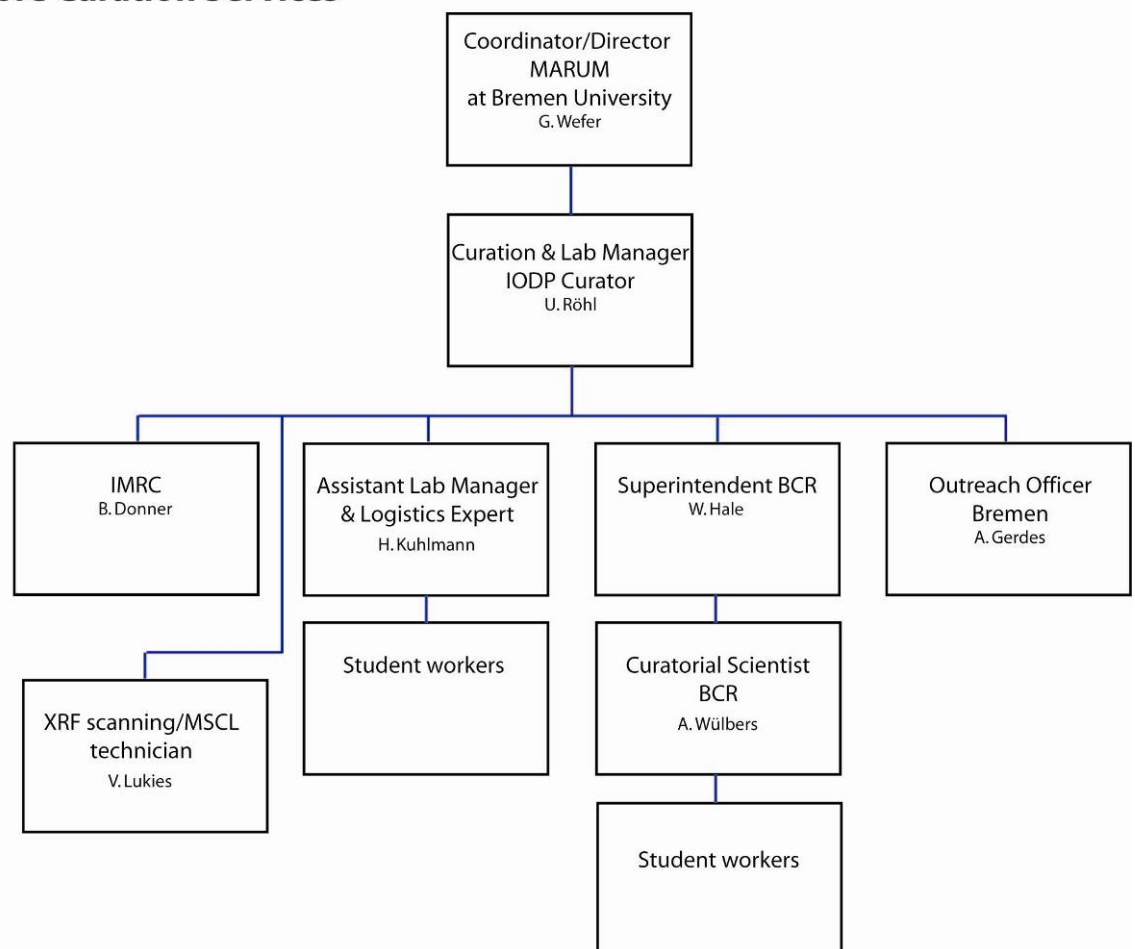
### The composition of BCR

The key personnel within the BCR and their areas of responsibility are:

- Prof. Dr. Gerold Wefer, Director of MARUM at Bremen University.
- Dr. Ursula Röhl is the IODP Curator as well as being the ESO Curation & Laboratory Manager, Head of the IODP group, and Repository/Laboratory Infrastructure Group of MARUM. She oversees all curation-related issues according to IODP policies.
- M. Sc. Walter Hale is the Superintendent of the BCR. He is responsible for the long-term preservation of core material as well as for assuring that appropriate samples are provided to requesting investigators. He evaluates and approves post-moratorium sample requests.
- Dipl. Geol. Alexius Wülbers is the Curatorial Scientist at the BCR. He provides logistical and practical services in the operation of the core repository. In addition, he takes over the role of superintendent in the absence of Walter Hale, also evaluating and approving sample requests.

### Bremen Core Repository (BCR)

#### Core Curation Services



- The MARUM at the University of Bremen is very extensive and diverse, with abundant support scientists, technicians, and students, e.g., Dr. Barbara Donner (MRC), Dipl. Ing. (FH) Vera Lukies (XRF Core Scanning), Dr. Holger Kuhlmann (Logistical Specialist & ESO assistant lab manager), and Albert Gerdes (Outreach). No major changes in this personnel and organizational structure are anticipated for the near future.

# IODP Annual Program Plan

FY2012

[GLOSSARY](#)

## Glossary

### Frequently Used References/Acronyms

The following list contains acronyms or abbreviations frequently used in IODP. Not all may appear in the text of the Annual Program Plan.

ACEX	Arctic Coring Expedition
ACH	Automated Clearing House
ACORK	Advanced Circulation Obviation Retrofit Kit
AESTO	Advanced Earth Science and Technology Organization (Japan)
AGI	American Geophysical Institute
AGU	American Geophysical Union
ANZIC	Australia-New Zealand IODP Consortium
AOGS	Asia-Oceania Geosciences Society
APC	Advanced Piston Core
APCT	APC Temperature Tool
API	American Petroleum Institute
APL	Ancillary Project Letter
APP	Annual Program Plan
BCR	Bremen Core Repository
BGS	British Geological Survey
BHA	Bottom Hole Assembly
BoG	Board of Governors
BOSIET	Basic Offshore Safety Induction and Emergency Training
BP	Before present
BSR	Bottom Simulator Reflector
CB-RMM	Core barrel - retrievable memory module
CC	Core Curation
CCD	Carbonate Compensation Depth
CDEX	Center for Deep Earth Exploration (JAMSTEC)
CDP	Complex Drilling Projects
CDS	Cadiz Contourite Depositional System
CMCR	Center for Advanced Marine Core Research (Kochi University)
CMO	Central Management Office
CNRS	Centre National de la Recherche Scientifique (France)
CO	Contracts Officer
COI	Conflict of Interest
COL	Consortium for Ocean Leadership
CORK	Circulation Obviation Retrofit Kit
CPI-U	Consumer Price Index-Urban
CPP	Complementary Project Proposal
CRISP	Costa Rica Seismogenesis Project
DIS	ICDP Drilling Information System
DM	Data Management
DMCG	Data Management Coordination Group



## Glossary

DMS	Data Management Specialist
DNA	Deoxyribonucleic acid
DOI	Digital Object Identifier
DP	Dynamic Positioning
DPG	Detailed Planning Group
DRILLS	Distinguished Researcher and International Leadership Lecture Series
CRISP	Costa Rica Seismogenesis Project
DSDP	Deep Sea Drilling Project (1968-1982)
DSS	Drilling Sensor Sub
D/V	Drilling Vessel
DVD	Digital Video Disc
DVTP	Davis-Villinger Temperature Probe
E&O	Education and Outreach
ECI	Employment Cost Indicator
ECORD	European Consortium for Ocean Research Drilling
ECR	The East Coast Repository
ED	Education
ED	Engineering Development
EDP	Engineering Development Panel
EGU	European Geosciences Union
EMA	ECORD Management Agency
ENP	Engineering Prototype
EOR	Expedition Objective Research
EPC	European Petrophysics Consortium
EPM	Expedition Project Manager/Staff Scientist
EPSP	Environmental Protection and Safety Panel
ESO	ECORD Science Operator
ESSAC	ECORD Science Support and Advisory Committee
ESSEP	Environmental Science Steering and Evaluation Panel
EXP	Experimental prototype (Re: Long-Term Borehole Monitoring)
FAMIS	Financial and Management Information System (TAMU)
FMS	Formation Micro Scanner
FTE	Full-time employee
FY	Fiscal Year
G&A	General and Administrative
GBR	Great Barrier Reef
GBRMPA	Great Barrier Reef Marine Park Authority
GC/MSD	Gas Chromatography/Mass Selective Detector
GCR	Gulf Coast Repository
GeoB	Bremen University in the Geoscience Department
GIS	Geographic Information Systems

## Glossary

HSE	Health, Safety and Environment
HSE-MS	Health, Safety and Environment Management System
H&M	Hull & Machinery
HPCS	Hydraulic Piston Coring System
HUET	Helicopter Underwater Escape Training
ICDP	International Continental Scientific Drilling Program
IFREE	Institute for Frontier Research on Earth Evolution/JAMSTEC
IGC	International Geological Congress
INSU	Institut National des Sciences de l'Univers
INVEST	IODP New Ventures in Exploring Scientific Targets
IO(s)	Implementing Organization(s)
IODP	Integrated Ocean Drilling Program
IODP-MI	Integrated Ocean Drilling Program Management International, Inc.
ION	International Ocean Network
ISC	Information Service Center
ISHI	Ippan Shadan Hojin (General Corporation) IODP-MI
ISP	Initial Science Plan (2003-2013)
IT	Information Technology
JAMSTEC	Japan Agency for Marine-Earth Science and Technology
JANUS	USIO Database System
J-CORES	Japanese Database System
J-DESC	Japan Drilling Earth Science Consortium
JOIDES	Joint Oceanographic Institutions for Deep Earth Sampling
JR	JOIDES Resolution
JPGU	Japan Geosciences Union
JPIO	Japan Implementing Organization
KCC	Kochi Core Center Repository
KIGAM	Korea Institute of Geoscience and Mineral Resources
kt	knots
LA(s)	Lead Agencies
Lab	Laboratory
LDAP	Lightweight Directory Access Protocol
LDEO	Lamont-Doherty Earth Observatory
LGHF	Laboratoire de Geophysique et Hydrodynamique en Forage
LGM	Last Glacial Maximum
LIMS	Laboratory Information Management System
LTBMS	Long-Term Borehole Monitoring System
LUBR	Leicester University Borehole Group
LWC	Logging while coring
LWD	Logging while drilling
m	meters

## Glossary

M&A	Management and Administration
MAT	Mid-Atlantic Transect
mbsf	meters below sea floor
MCS	Multi Channel Seismic
MDHDS	Motion Decoupled Hydraulic Delivery System
MEXT	Ministry of Education, Culture, Sports, Science and Technology (Japan)
MMM	Multi-sensor Magnetometer Module logging tool
MOES	Ministry of Earth Sciences (India)
MOST	Ministry of Science and Technology (People's Rep. of China)
MPI	Max Planck Institute for Marine Microbiology
MRC	Micropaleontological Reference Centers
msb	meters sub-basement
MSCL	Multi Sensor Core Logger
MSP	Mission Specific Platform
MTDCs	Modified Total Direct Costs
MWJ	Marine Works Japan
NanTroSEIZE	Nankai Trough Seismogenic Zone Experiment
NERC	Natural Environment Research Council (UK)
nmi	nautical miles
NSF	National Science Foundation (USA)
OCC	Oceanic Core Complex
OCE	Division of Ocean Sciences, NSF
Ocean Leadership	Consortium for Ocean Leadership, Inc.
ODL	Overseas Drilling Limited
ODP	Ocean Drilling Program (1983-2003)
OOI	Ocean Observing Initiative (USA)
OPCOM	Operations Committee (now Operations Task Force)
OPIC	Other Program Integration Costs (USIO)
OPITO	Offshore Petroleum Induction Training Organization
ORI	Ocean Research Institute (now Atmosphere and Ocean RI), University of Tokyo
ORION	Ocean Research Interactive Observatory Networks
OSP	Onshore Science Party
OTF	Operations Task Force
PA	Publication Assistants
PANGAEA	Publishing Network for Geoscientific & Environmental Data
PCS	Pressure Core Sampler
PEAT	Pacific Equatorial Age Transect
PEP	Proposal Evaluation Panel
PI	Primary Investigator
PMO(s)	Program Member Offices

## Glossary

PMT	Project Management Team
POC(s)	Platform Operations Costs
POTS	Publication Obligation Tracking System
PSDIM	Publications, Sample and Data Integration manager
PSG	Project Scoping Group
PTM	Pulsed Telemetry Module
QA/QC	Quality Assurance/Quality Control
RCB	Rotary Core Barrel
RDF	Resource Description Framework
RFP	Request for Proposal
RIS	Rig Instrumentation System
RMM	Retrievable Memory Module
RMS	Routine Micro-Bio Samples
RNA	Ribonucleic acid
ROW	Removal of wreck
SAC	Sample Allocation Committee
SAFOD	San Andreas Fault Observatory at Depth
SAS	Science Advisory Structure
SASEC	SAS Executive Committee
SCIMPI	Simple Cabled Instrument for Measuring Parameters In-situ
S-CORK	Sediment CORK
SCP	Site Characterization Panel
SDRM	Sample and Data Request Management system
SDSC	San Diego Super Computer Center
SEDIS	Scientific Earth Drilling Information System
SIC	Systems Integration Contract (USIO)
SIO	Scripps Institution of Oceanography
SIPCom	Science Implementation and Policy Committee
SIT	Systems Integrated Training
SKOS	Simple knowledge organization system
SMCS	Sample Materials Curation System
SOC(s)	Science Operating Costs
SODV	Scientific Ocean Drilling Vessel
SPC	Science Planning Committee
SPPOC	Science Planning and Policy Oversight Committee (operated up until April, 2006)
SRMs	Standard Reference Materials
SSDB	Site Survey Data Bank
SSEP	Science Steering and Evaluation Panel
SSP	Site Survey Panel
STP	Scientific Technology Panel
TAMU	Texas A&M University

## Glossary

TAMRF	Texas A&M Research Foundation
TD	Target Depth
TESS	Technical, Engineering and Science Support
TOB	Torque on bit
TOC	Total Organic Carbon
ToR	Terms of Reference
TUMSAT	Tokyo University of Marine Science and Technology
UBI	Ultra Borehole Imager
URI	University of Rhode Island
USAC	U.S. Advisory Committee for Scientific Ocean Drilling
USGS	U.S. Geological Survey
USIO	United States Implementing Organization
USSAC	United States Science Advisory Committee
USSSP	U.S. Science Support Program
VCD	Visual core description
VP-SO	Vice President for Science Operations
VP-SP	Vice President for Science Planning
VSAT	Very small aperture terminal
VSI	Versatile Seismic Imager
VSP	Vertical Seismic Profile
WBE	Work Breakdown Element
WDC	World Data Center
WDC-MARE	World Data Center - Marine
WOB	Weight on bit
WST	Well Seismic Tool
XCB	Extended Core Barrel
X-CT	X-ray CT Scanner
XRD	X-ray Diffraction
XRF	X-ray fluorescence