Research Support Plan

Dr. Arnold Gordon (Chief Scientist)
OO-215-O

Cruise Number: NBP03-02
25 February – 11 April 2003

10 January 2003

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R/V NATHANIEL B. PALMER Based Project

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Outstanding Issues

Physical Qualification (PQ) and Travel

Most people deploying on AnSlope I have already PQed but several have not. Karl Newyear at RPSC will continue to monitor everyone's status, and airline tickets will not be issued to anyone until they've PQed. Everyone requiring commercial travel to/from New Zealand except those noted below should submit their Travel Request Worksheet (TRW) to Karl.

People PQing via another nation's Antarctic program must ensure that Harry Mahar at NSF (hmahar@nsf.gov) receives confirmation of such clearance. The USAP will provide foreign AnSlope participants with military flights from Christchurch to McMurdo. Other portions of their travel and PQ are being handled on a case-by-case basis. The USAP is also providing limited travel and PQ support for participants in the Italian CLIMA project on a case-by-case basis.

New Zealand MAF permits

Importation of scientific samples to New Zealand or temporary importation into New Zealand for transshipment to the United States requires a permit from the New Zealand Ministry of Agriculture and Forestry (MAF). This applies to *any* scientific samples including untreated, unfrozen seawater samples. Anyone planning on collecting samples and needing a MAF permit should contact Karl Newyear who can provide the necessary application forms. Your samples will not be permitted to leave the ship until the necessary permits are obtained! A permit application for transshipment of seawater samples for CFC analysis has been received by Karl Newyear; application for He/T samples is expected.

Email Charges

A new email policy has been enacted on the LMG and NBP. Each cruise participant will be allotted a quota of email volume that may be used to send or receive personal or business email, including any attachments or digital photos throughout the cruise. A daily summary of each person's usage will be available in their home directory on the ship. Once a person's quota is exhausted they will be charged actual transmission costs of any excess traffic, currently about US$30/Mb, collected by the MPC at the end of the cruise. Please be sure that your field team members have the ability to pay for any anticipated charges prior to leaving the ship. US cash, traveler's checks, or personal checks are acceptable but personal checks are recommended to avoid having to make exact change. Please see the "Computers and Communications" section below for further details. (E-mail policy page 36)

Computer Networking

If users bringing Windows NT, 2000, or XP computers wish to connect to the NBP network they must remember to *get the administrator password* from their home institution's network administrator, or it will be impossible to support these machines. These computers will be set up on the network with DHCP and not an assigned IP address. Please ensure that any computers you wish to connect to the network support DHCP.

Swath Bathymetry System

The Sea Beam 2112 Multi-beam Sonar System has been decommissioned from the NBP. This system was replaced with a Kongsberg Simrad EM 120 Multi-beam Sonar system and accepted after trials in November. The Simrad will be available for use during AnSlope.

Acoustic Release Operations

Continuing research and discussions are taking place between RPSC, OSU, and EdgeTech regarding how to run the grantee-provided deck release boxes through the NBP's hull-mounted transducers. The hardware, including all cables, are currently on the NBP, but a copy of the deck release box manual was brought to RPSC HQ. If no resolution is obtained, it is still possible to use the over-the-side transducers to accomplish the same ends but less efficiently.

Microstructure Instrumentation Upgrade

The CMiPS instrument originally purchased for and used on GLOBEC cruises has been approved for use on AnSlope. The battery pack and other parts were left on the NBP at the end of GLOBEC IV. The sensor package was sent to the manufacturer for calibration, refurbishment, and upgrade. It is

anticipated that the work will be completed in time for shipment to McMurdo to meet the NBP. This issue is under the manufacturers' control, not RPSC's at this time.

Cruise Overview

Intended Cruise Track and Schedule

The NBP will arrive at the McMurdo Station ice pier on 20 February 2003. Fuelling and cargo operations will begin immediately. Personnel from the previous cruise will disembark on 21 February and AnSlope participants will embark that same day. The NBP will depart from McMurdo Station, Antarctica on 25 February 2003 to begin AnSlope I and head toward Cape Adare and the AnSlope study area. Work will generally proceed from west to east, though the exact cruise track will depend upon ice conditions and the position of icebergs. There are no planned stops at Terra Nova Bay or other landing sites during the cruise. Scheduled arrival at Lyttelton, New Zealand will be on 11 April 2003.

General data collection will include the following: GPS, meteorology, uncontaminated seawater, XBTs, underway gravity, ADCP, CTD including salts, oxygen titrations, ship's speed and heading, and sonar and swath bathymetry. XBTs will be launched to determine the sound speed profile for proper sonar readings in addition to those used for hydrographic purposes. Up to 11 moorings will be deployed at the beginning of the cruise, then recovered, serviced, and redeployed at the end. All deployments will be anchor-last. Location of the large icebergs currently in the Ross Sea may limit access to target study areas or otherwise affect the ship's track for cruise NBP03-02. It is reported that access to McMurdo Sound requires passing to the east of iceberg C-19. The TeraScan system will provide remote sensing imagery to be used in planning the ship track.

Science of Opportunity

There are several permanently installed science of opportunity systems on board the NBP that will be used during this cruise. All data collected from these systems will be included in the cruise-end data report provided to the Chief Scientist. RPSC personnel will monitor these systems as part of their normal duties. These projects are approved by the NSF and the equipment may not be relocated.

ADCP: The Acoustic Doppler Current Profiler is a hull-mounted system that has been in place for several years on the NBP. The transducers operate at an acoustic frequency of 150 kHz. Dr. Eric Firing of the University of Hawaii is the PI responsible for data quality and archiving.

Gravity Meter: This system is nearly autonomous and requires very little maintenance. As part of the normal upkeep of the gravimeter, a gravity tie will be performed in McMurdo prior to AnSlope and another in Lyttelton at the end of the cruise. The gravimeter occupies a small room in the Aft Dry Lab and is part of the NSF equipment pool. There is no PI responsible for data collection.

pCO_2: Taro Takahashi and Colm Sweeney have installed a system in the Hydro Lab of the NBP which measures the concentration of CO_2 in surface seawater. It draws water from the uncontaminated seawater system and requires several cylinders of compressed gas.

General Information

Travel

Travel arrangements for the science party are initiated by filing a Grantee Travel Request Worksheet (TRW) with RPSC. This form is normally included in your medical packet. However, if you have previously deployed within the last year, your PQ status may still be valid and you will not receive a new packet or TRW. If you need a new form or have not received one, please contact Karl Newyear. The USAP will provide foreign AnSlope participants with military flights from Christchurch to McMurdo. Other portions of their travel are being handled on a case-by-case basis. The USAP is also providing limited travel and PQ support for participants in the Italian CLIMA project on a case-by-case basis.

It is the PI's responsibility to ensure that all cruise participants possess, and bring with them, a valid passport. Visas are not necessary for passage through New Zealand if you are travelling on a US passport. Please check with your local New Zealand consulate to verify whether a visa is necessary for citizens of other nations. Upon entering New Zealand you will be issued a three-month tourist visa. If you

plan to travel on other business or pleasure either before or after the cruise, it is your responsibility to comply with the immigration regulations of the nation(s) you will be visiting. Please be aware that New Zealand has strict quarantines on agricultural products and has begun to issue on-the-spot fines to violators. Please refer to the New Zealand Quarantine Statement on page 38 for further details.

Based upon your initial travel request, RPSC Travel will make hotel reservations for you in Christchurch, but USAP participants must pay their own hotel bills prior to departure. Storage space for personal luggage during the cruise is available at the USAP Clothing Distribution Center (CDC) in Christchurch. APO Post Office facilities are also available to AnSlope participants.

All grantees are currently scheduled for a military flight from Christchurch to McMurdo on either 19 or 21 February. Please be aware that these schedules may change due to weather, mechanical, or other reasons and all cruise participants should remain flexible in their "on-ice" date. Baggage limits for the Christchurch-McMurdo military flight are as follows: 34 kg of checked luggage and one piece of carry-on luggage not to exceed 24" x 15" x 9". Contents are not regulated beyond normal prohibitions against carrying dangerous goods. Participants may use their own luggage, the orange bags issued with your Extreme Cold Weather gear (ECW), or a combination to carry personal and business effects to McMurdo. Please notify Karl Newyear if you expect to exceed these allowances on your southbound travel; Excess Baggage Request forms can be provided to you. See "Clothing Issue" below for further details on what items of ECW must be worn during your flight. A box lunch will be provided to you for your flight.

Grantees will be able to move aboard the NBP on 21 February 2003. People arriving at McMurdo prior to this date will be provided housing on Station and Karl Newyear will inform participants about specific arrangements. Cruise participants do *not* need to submit a McMurdo Housing Request form. While the NBP is at McMurdo the science party will be allowed on board to begin setting up lab spaces, stowing gear, etc. However, the ice pier will not be available during the entire port call and it is anticipated that zodiacs will be required for transportation between McMurdo and the NBP for most of the port call. Please be aware that there may be major construction projects or heavy cargo movement around the ship and some areas may be temporarily off-limits to ensure safety.

Personnel disembarking from the ship after cruise NBP03-02 must move off on 12 April 2003, the day after our scheduled arrival in Lyttelton. Return travel arrangements and hotel reservations will be made by the MPC and the Christchurch USAP Travel Office near the end of the cruise. As before the cruise, USAP participants must pay their own hotel bills prior to departure.

All travelers are subject to a departure fee of NZ$22 payable in cash at the airport in Auckland, New Zealand on your homeward travel leg. A sticker will be attached to your boarding pass and you will not be allowed to board your flight without it.

Clothing Issue

Extreme Cold Weather (ECW) clothing will be issued to all cruise participants (except some CLIMA participants who are receiving clothing from the Italian Antarctic Program) at the Clothing Distribution Center (CDC) in Christchurch. When you first arrive in Christchurch you will be met by a USAP representative and assigned a time to try on your ECW gear to be sure it fits. Once your flight to McMurdo departs, there will be no opportunity to exchange items. Certain items of ECW must be worn on the flight from Christchurch to McMurdo including: balaclava, pile knit hat, or yazoo cap; bunny boots or blue FDX boots; furback gauntlets, wool mittens or gloves; red down parka or Carhartt parka; polar fleece jacket; sunglasses; bib wind pants with liner, field trousers with liner, or Carhartt bib overall; thermal underwear (tops and bottoms); wool socks. Any other items may be declined. (NOTE: this list differs slightly from that on page 45 of the 2000-2002 Participant's Guide). ECW clothing you accept but do not wear on the Christchurch-McMurdo flight will count against your checked luggage weight limit of 34 kg. Safety flotation gear and hard hats must be worn at the Marine Technician's (MT's) or Marine Project Coordinator's (MPC's) discretion while working on the main deck of the NBP. These are provided on board the ship. Safety footgear, such as steel-toed boots, are recommended but not provided. All participants are welcome to bring any personal ECW clothing such as hats or gloves. All USAP-issued ECW must be returned to the CDC at the end of the cruise. Details on how this is to be done will be determined by the MPC in consultation with the CDC.

Cruise Data Distribution
RPSC personnel require approximately 48 hours immediately prior to arrival in port to compile and process the underway environmental data (DAS system) and to copy this data onto CD. Details are included in the "Computers and Communications" section under "Cruise Data Distribution."

Underway Data
As decided by ARVOC, all general underway data (TSG, fluourometer, transmissometer, and meteorological data) collected on the NBP will be considered public after the cruise and available to anyone who requests it. This data is not 'owned' by the scientists onboard the cruise or by RPSC.

Emergency Contact Information
Should the vessel need to be contacted immediately, such as in an emergency, please inform your land-based point of contact that RPSC Headquarters in Denver can be reached at: **1-800-688-8606**. Dawn Scarboro, the Marine Administrative Coordinator, is at extension **32229**. She will forward the message or assist with INMARSAT calls. The RPSC operator can be contacted to page anyone in Marine Operations if Dawn is not available. The ship can also be called directly by using a credit card via INMARSAT at **011-872-336-661-010** (Pacific Ocean Region) or IRIDIUM at **1-808-659-5076.**

Shipboard Policies

The ship's Captain is the final authority for all safety-related matters posing any danger to the ship and/or anyone aboard it. Additionally, if the Marine Projects Coordinator (MPC) or the Chief Scientist finds that an unsafe condition exists, he has the authority to stop any related shipboard science until the situation is corrected. This would include issues of industrial, marine, or laboratory safety.

A meeting will be held between the Chief Scientist, MPC, and the Captain before the ship sails to discuss the schedule of operations for the cruise. Although there are no cruises scheduled immediately after AnSlope I, it is important that port be reached on the morning of the day the cruise is scheduled to end. Transgressions of this policy in the past have adversely affected subsequent science projects and need to be avoided. It is most desirable to have a consensus reached among the Captain, MPC, and Chief Scientist. However, should that not be possible the MPC's decision will be final, as per contract and as directed by NSF. This decision will take into account transit time as provided by the Captain and science objectives as provided by the Chief Scientist. The MPC is most aware of vessel operational requirements beyond the present cruise.

Participant Information

Cruise Participants
The following personnel are scheduled to participate in cruise NBP03-02. Please refer to the Medical Report below for PQ status as of the date of this document.

NAME	PKT SENT	MED REC	MED REV	ADD'L INFO	MED PD	DEN REC	DEN REV	ADD'T INFO	DEN PQ	PQ	PQ EXPIRES
ASSMAN, KAREN M	6/25/02	10/16/02	10/18/02	10/22/02	10/25/02	10/15/02	10/16/02		10/17/02	10/25/02	4/30/03
BERGAMASCO, ANDREA	6/26/02									11/14/02	5/14/03
BODA, KENNETH	6/28/02	11/18/02	11/27/02	11/20/02	12/2/02	11/18/02	11/19/02		11/20/02	12/2/02	6/2/03
BRATCHER, AMY	6/28/02	11/4/02	11/8/02	11/6/02	11/11/02	11/6/02	11/7/02		11/8/02	11/11/02	11/11/03
BROOKSFORCE, KATHRYN	6/28/02	12/27/02	12/30/02		12/31/02	12/9/02	12/10/02		12/11/02	12/31/02	12/31/03
CURCHITSER, ENRIQUE	6/28/02	12/17/02	12/23/02		12/26/02	12/17/02	12/18/02		12/20/02	12/26/02	12/26/03
DACHILLE, ANTHONY	10/9/02	12/5/02	12/6/02		12/9/02	12/5/02	12/6/02		12/9/02	12/9/02	12/9/03
GORDON, ARNOLD	6/28/02	10/21/02	10/23/02	10/23/02	10/25/02	9/9/02	9/20/02	9/11/02	9/23/02	10/25/02	10/25/03
HUBER, BRUCE	6/28/02	9/25/02	9/27/02	10/1/02	10/30/02	10/28/02	10/29/02		10/30/02	10/30/02	10/30/03
MACKAY, CHRIS	2/26/02	3/13/02	4/3/02	3/15/02	4/3/02	4/3/02	4/3/02		4/3/02	In-process	
MATHIEU, GUY G	10/9/02	11/21/02	12/17/02	11/22/02	12/18/02	11/6/02	11/7/02		11/8/02	12/18/02	12/18/03
MATHIEU, SALLY J	10/16/02	11/21/02	12/17/02	11/22/02	12/18/02	11/6/02	11/7/02		11/8/02	12/18/02	12/18/03
MELE, PHILIP A	6/28/02	11/14/02	12/12/02	11/19/02	12/13/02	12/9/02	12/10/02	12/11/02			
NAME	PKT	MED	MED	ADD'L	MED PD	DEN	DEN	ADD'T	DEN PQ	PQ	PQ

	SENT	REC	REV	INFO		REC	REV	INFO			EXPIRES
ORSI, ALEJANDRO H	6/28/02	11/26/02	11/27/02		12/2/02	11/26/02	12/10/02	12/3/02	12/11/02	12/11/02	6/11/03
PADMAN, LAURENCE	4/1/02	7/5/02	7/8/02		7/10/02	7/22/02	7/23/02		7/24/02	7/24/02	7/24/03
SIMPKINS, JOHN	6/28/02	10/28/02	11/14/02	10/31/02	11/15/02	10/31/02	11/1/02		11/4/02	11/15/02	5/15/03
STANTON, BASIL R	6/28/02	8/8/02	9/6/02	8/19/02	9/9/02	8/9/02	8/12/02		8/13/02	9/9/02	4/30/03
STONE, ERIN C	11/19/02	12/17/02	1/3/03	12/17/02	1/6/03	12/17/02	1/3/03	12/17/02	1/6/03	1/6/03	1/6/04
ZAMBIANCHI, ENRICO	6/28/02									11/14/02	5/14/03

RPSC Staff:

Karl Newyear, Marine Projects Coordinator
Annie Coward, Marine Technician
Chris McGuier, Marine Technician
Bruce Felix, Electronics Technician
Kathleen Gavahan, Network Administrator
Robbie Liben, Network Administrator
Laura Tudor, Marine Science Technician
Jen Huggins, Marine Technician
Steve Tarrant, Marine Technician
Peter Martin, Electronics Technician
Paul Huckins, Network Administrator
Bryan Klostermayer, USCG observer

Permits

Importation/Transshipment of Scientific Samples

Importation of scientific samples to New Zealand or temporary importation into New Zealand for transshipment to the United States requires a permit from the New Zealand Ministry of Agriculture and Forestry (MAF). This applies to *any* scientific samples including untreated, unfrozen seawater samples. It is the responsibility of the PI to obtain any necessary MAF permits prior to the cruise. Anyone planning on collecting samples and needing a permit should contact Karl Newyear who can provide the necessary application forms (Form A for importation, Form C for transshipment). Your samples will not be permitted to leave the ship until the necessary permits are obtained! A permit application for transshipment of seawater samples for CFC analysis has been received by Karl Newyear; an application for He/T samples is expected.

Radioisotope Usage

A Radioisotope Usage Authorization has been issued by the NSF allowing operation of two each gas chromatographs (GCs) containing a sealed source of ^{63}Ni during AnSlope I. This permit specifically covers only cruise NBP03-02, so a new permit will need to be obtained for future AnSlope cruises.

An Authorization to Import Radioactive Materials has been issued by the New Zealand National Radiation Laboratory. This document allows the GCs to enter New Zealand or to be offloaded from the NBP for servicing, if necessary. A separate Export permit to ship the GCs back to the US will be applied for at the appropriate time by RPSC.

Real-time SeaWiFS

At this time, AnSlope has not applied for a permit to allow real-time decryption of SeaWiFS ocean surface color (i.e. chlorophyll concentration) imagery by the NBP. This type of imagery can be received on the TeraScan system and is available for decryption without a permit approximately 2 weeks after being received. Please notify Karl Newyear if such support is needed. Further information is available at *http://seawifs.gsfc.nasa.gov/SEAWIFS/LICENSE/checklist.html*.

Environmental Documentation

No environmental documentation is required for the use of XBTs or mooring anchors which are irretrievable. Such releases are covered under the Master Antarctic Conservation Act (ACA) Permit held by RPSC. These and other intentional or accidental releases will be logged by the MPC for inclusion in the Annual Report required under RPSC's stewardship of the ACA.

Any hazardous or laboratory waste generated during the cruise will be properly documented and packaged for disposal through normal USAP channels. The Marine Science Technician will oversee the use and disposal of all laboratory waste, whether considered hazardous or not. Grantees are expected to assist the MST in these tasks when requested.

Cargo

Southbound
USAP Packing and Shipping Instructions are available at *http://www.polar.org/usapserv/ato/index.htm*.

The majority of southbound AnSlope cargo was onloaded to the NBP during its port call in Port Hueneme in early November 2002 (see page 14). Additional hardware items such as chain and hydraulic fittings were onloaded during the NBP's port call in Lyttelton, NZ in early December 2002. Grantee-requested compressed gasses are being procured by RPSC and are listed in the attached Equipment Allocation spreadsheet. (page 16)

Mooring anchors provided by Oregon State University were shipped to Port Hueneme and onloaded to the American Tern (the cargo vessel replacing the Green Wave this year). They will be offloaded at McMurdo in early February 2003 and picked up by the NBP at the ice pier during the pre-AnSlope port call. Their TCNs are 2215-2039 and 2215-2040.

The remaining pieces of southbound cargo expected for cruise NBP03-02 include the following:

1 each CMiPS sensor package, approximately 150 lbs, 12 cubic feet
1 each PROVOR float from MetOcean, approximately 125 lbs, 14 cubic feet (TCN 2215-6041)
1 package of baked O-rings for CTD, approximately 15 lbs, 1 cubic foot

It is anticipated that there will be several silver trunks of Orgear hand carried to McMurdo by RPSC staff deploying on NBP03-02.

Please inform Karl Newyear immediately if other cargo is expected. Space must be reserved on southbound military flights for such items.

Northbound
Unless specified, all cargo will return to the United States through the USAP cargo system. That is, from Christchurch, New Zealand via Port Hueneme to the final destination.

If you have other cargo needs, such as shipping from Christchurch to a non-USA destination, please inform Karl Newyear at RPSC as soon as possible. These shipping arrangements should be made prior to the cruise with USAP Logistics personnel in Christchurch. The grantee is responsible for arranging payment for these types of shipments.

The empty containers and other boxes currently used for storage of AnSlope mooring equipment will be offloaded from the NBP and stored in Christchurch prior to AnSlope III. Logistics for returning these containers to the NBP will be decided at the end of AnSlope I. It is anticipated that the gas chromatographs will remain on the NBP until the end of AnSlope III and returned to the US at that time.

Currently, no northbound cargo from AnSlope is anticipated. It's possible that water samples in either glass ampoules or copper tubing will require retrograde shipment. If so, the PIs must apply for a New Zealand MAF permit, Form C allowing transshipment of scientific samples, Please see the "Permits" section above for further information.

Computers and Communications

E-mail
All participants will be provided with an e-mail account on the NBP. The address will be of the form **firstname.lastname@nbp.usap.gov** . For example, Ernest Shackleton's address would be Ernest.Shackleton@nbp.usap.gov and Robert Scott's address would be Robert.Scott@nbp.usap.gov. The participant's logon name for the ship's network will be the first six letters (if available) of a participant's last name plus the first two letters of their first name (as it appears on the participant's medical paperwork). For example, Ernest Shackleton's username would be "shackler" and Robert Scott's username would be "scottro". E-mail and network access will be made available 24 hours before the beginning of the cruise and will end no later than 24 hours after arrival in port following the cruise so that workstation and network maintenance can begin.

The NBP does ***not*** maintain an active Internet connection; thus HTTP, IRC, FTP and other Internet services are generally not available. E-mail is transferred via the INMARSAT B satellite communications system using a proprietary data transmission system called Ffastest (described below). E-mail bound for the outside world is collected on the mail server until communication is established with a complimentary server in Denver which collects mail bound for the NBP. E-mail is generally exchanged with Denver twice per day. The actual transmission times vary from cruise to cruise depending on communication needs. Once established however, the e-mail transmission times will be posted in the Electronics Lab and should remain constant for the duration of the cruise. The NBP e-mail system is quite robust and implements several safeguards against lost mail. However, the nature of shipboard satellite communication means losses can still occur. Participants should request confirmation of receipt from their correspondent for any vital e-mail; however, do **not** use "Return Receipts" which are unreliable and should not be used aboard the NBP.

Due to the high cost of satellite data transmission, participants are strongly discouraged from subscribing to high-volume list servers via their NBP e-mail account. If a participant does subscribe to a list server, they are responsible for unsubscribing from that list server before their email accounts have been disabled at the end of the cruise. Network Administrators may take whatever steps are necessary to stop list server e-mail being sent to the NBP after a participant disembarks the vessel. Be aware that participants may be required to pay for excessive e-mail that is sent to them.

PLEASE NOTE: A new email policy has recently been implemented on the NBP. Generally speaking, this policy gives each user an allotment for a set amount of email that can be sent/received throughout the cruise. A daily summary of usage will be posted to each person's home directory. The user will be charged actual transmission costs, currently approximately US$30/Mb, for any email sent/received above this allotment. The charges will be totaled at the end of the cruise and must be paid for with either a traveler's check, personal check or US cash. Personal checks are recommended to avoid needing to make exact change. *Please make sure all participants in your group have the means to pay for any charges they may incur.* Please see the Email Policy on page 36 for details.

It is not recommended that files/messages of over 5 megabytes be transferred over INMARSAT. The chances of maintaining a connection long enough, at sea, to transfer this volume of data are not great. Under no circumstances should transfers of 20 megabytes or more be attempted by vessel IT staff, even if billing of the costs has been agreed to. The chances of success are very low, and the outcome is likely to be an incomplete transfer and a big bill. System users must understand the limitations of working in extremely remote environments.

At McMurdo, there are public-use computers located in the Telesciences area of Crary Lab and in Building 155. Unlike on the NBP, 24 hour Internet access is available. Users can POP or telnet to their home email account and several email packages are available for use. If necessary, please bring your home institution's pop server name to properly access your account. If you would like a local group account to facilitate data sharing while in McMurdo, it can be created upon arrival either by informing the Help Desk or the Crary Lab Computer Coordinator.

Ship's Network

The NBP maintains a ship's network to ease the movement of data among the ship's systems and individual workstations. UNIX, PC (Windows), and Macintosh OSX workstations are available for public use in the Electronics Lab. Each participant will receive a network account which grants access to email, applications, and shared drives across all supported platforms. Several systems are dedicated to data acquisition, file serving, or other tasks and are not available for public use. Most of these non-public computers are in the LAN Office or the Forward Dry Lab.

Public PC (Windows) and Macintosh workstations are preloaded with Microsoft Office and several other commonly used applications. Specific software packages may be available if pre-arranged with RPSC. Participants may bring their own software for installation on public workstations. However, the Network Administrator must approve it before installation.

All lab spaces and most cabins on the NBP have network drops available. Personal computers may be brought on board and configured for connection to the NBP network by the Network Administrator provided they are capable of TCP/IP networking over 10base-T Ethernet. These computers must be checked for viruses prior to connection to the network. In general, software, hardware, and removable media will *not* be provided unless requested and approved in advance of the cruise. For scientific work floppy disks and CDs are available depending upon supply. However, if large quantities (more then 10) are required this should be included in the SIP. 100 Mb Zip drives are available but grantees should provide their own media.

The constant overturn of new users on the NBP provides the ideal environment for the spread of computer viruses. The network drives and public workstations are regularly scanned, but personal computers can arrive at the vessel with viruses. Participants are responsible for, and encouraged to use virus-scanning software on personal workstations connected to the NBP network. In addition, the Network Administrator must scan all personal workstations for viruses prior to placement on the NBP network, including all media brought on-board. Please see the Network Administrator for an appointment to scan personal computers and set up your machine.

The public workstations on the NBP are permanently mounted to prevent damage during vessel operations. Participants may not move these workstations or any peripherals attached to them (monitors, Zip drives, etc.) unless requested and approved by RPSC prior to the cruise.

The standard UNIX tape format on the vessel is DDS3 or DDS4 (or in special circumstances DLTs). Exabyte tapes are no longer supported.

The new Bathy2000 W system writes modified segy to the hard disk; it no longer uses magneto-optical disks.

Public computers
Computers available for public use, including email and data entry on the vessel include:
Four Unix workstations (two SGI O2s running IRIX and two Sun workstations running Solaris 8).
Four Window 98 PC's.
Four PowerMac G4 running Mac OSX.

The following printers are no longer available:
HP ColorJet 1200C
HP DeskJet 1600 CM Color Printers.
These have been replaced with two Color Laser Jet 4500 printers.

The HP DesignJet 755 Plotter has been requested and will be available for use during cruise NBP03-02.

Grantee Owned Computers
If requested, every attempt will be made to provide network access and printing services on a grantee's computer but there may be situations where outdated hardware, software, or missing drivers make such support impossible. If a grantee is bringing a mission-critical piece of equipment to the vessel, they must ensure that they have current hardware and software, including the original installation media and a full system backup. Additionally, all PCs and Macs connected to the vessel network must have a previously installed network adapter and be running anti-virus software with current virus definitions. We do not assign a static IP address to PC and laptop computers, but use DHCP instead.

Windows 98SE is the preferred operating system on the vessels and provides the most seamless integration with our network, but MacOS, Windows 95B, Windows 98, Windows ME, and Windows 2000 (with minor limitations on how it interacts with our network) have all been tested and will work. NT4 with SP6A and Windows XP have not been fully tested on the ship's network, but may work. Windows XP presents additional problems based on licensing issues. If a hardware change is made to the computer, the OS may disable the system until Microsoft is contacted to issue a new license code. Because of limited communications it may not be possible to do so. If users bringing Windows NT, 2000, or XP computers still wish to connect to the NBP network they must remember to *get the administrator*

password from their home institution's network administrator, or it will be impossible to support these machines. These computers will be set up on the network with DHCP and not an assigned IP address.

The grantees plan on bringing the following computers and operating systems to the NBP and request assistance in connecting them to the shipboard LAN:

Apple powerbook, OS9
Micron notebook, Windows 98
Micron notebook, Linux
PC, Windows 98 or more recent

Data Transfer Systems

All off-vessel data transfer from the NBP uses the INMARSAT communications system over a 64kBit high-speed satellite data channel. Satellite time for this channel typically costs around US$10/minute. While 64kBit transfers are possible, atmospheric conditions, vessel location, and other factors can sharply limit the available bandwidth.

In most cases data is routed through the Ffastest data transfer system rather than FTP or other methods. This is the same system used to transmit e-mail to/from RPSC Headquarters and is optimized specifically for transfer over INMARSAT. Data of any kind can be transmitted using this method and it is currently the most efficient and cost-effective way of doing so. However, the data can be transmitted only to RPSC Headquarters in Denver. Once there, RPSC personnel use standard Internet services to send the data to its final destination per grantee instructions.

Data Transfer Policy

The following policy is intended to stabilize INMARSAT costs while providing a mechanism for the transfer of data off the vessel during a cruise.

Data transfers via INMARSAT may be made for grantees. The grantee should contact the MPC or their designee to plan a data transfer. When these transfers are proposed, the grantee will be informed that they *will be billed* by RPSC for communication costs not previously approved and listed here, including satellite connect time. Network Administrators must report *all* data transfers to Jim Dolan at RPSC using established procedures.

Grantees will not be charged for data transfers identified, approved, and funded by NSF/OPP in the SIP review process. Data transfer requests meeting these criteria must be identified in this document. The costs of any other grantee-specific transfers must be covered from their respective grants.

No data transfers have been requested for the AnSlope cruise.

If possible, data transfers will be accomplished through the INMARSAT/Ffastest system. In a small number of cases, a TCP/IP connection may be required to obtain access to Internet services such as FTP. However, this method is much less efficient/more expensive than a Ffastest transfer and its use is discouraged.

Cruise Data Distribution

While at sea, the research vessel data acquisition system (RVDAS) continuously collects data from several on-board instruments. During the cruise, two processed data sets are produced each day: MGD77 and JGOFS. This processed data is made available on a public drive soon after processing is completed. The raw data is posted to a public drive just after midnight GMT of the day in which it was collected. Several options exist for the real-time display of acquired data.

There are several open channels available on the acquisition system for serial data input from participant instruments. Plans for connecting additional instruments must be made with RPSC in advance of the cruise to ensure that all systems are compatible, cable runs are available, etc.

Approximately 48 hours before pulling into port at the conclusion of the cruise, data acquisition will cease so that all the acquired data for the cruise can be organized, archived, and documented in preparation for writing to CD-ROM for distribution. We do not have permission to collect data within the 200 mile

Exclusive Economic Zone (EEZ) claimed by New Zealand. Up to three data distribution copies will be provided by RPSC; additional copies may be made as time permits. Note: turnover for the next cruise and network maintenance begins *immediately* upon arrival in port.

The data distribution will be written in ISO-9660 format, which is accessible to all platforms. Compression and archiving techniques are used to reduce the size of the distribution. Data originating on UNIX platforms, including all RVDAS data, will use "tar" archiving and "gzip" compression. Data originating on DOS/windows platforms will be archived and compressed using "zip" algorithms. Free tools are available on all platforms to extract these archives. A data report will be made available in hard copy and will be written into the data distribution in ASCII text format. The report contains information on data formatting and acquisition. Instrument calibrations will be provided as part of the data report when available.

Voice Communications

Outgoing INMARSAT calls may be made from the vessel with a credit card. INMARSAT costs are quite expensive, typically around US$5.00 per minute. The MPC and Network Administrators should be notified before placing a call in case official communication or e-mail transmission is pending. Personal calls may be time-limited and/or terminated at the discretion of the MPC.

The NBP also has an Iridium phone. As per NSF direction, this phone is not to be used for personal calls and may be used for business purposes only. Please check with the MPC if you wish to use this system.

Voice communications via Iridium and INMARSAT should be kept to a minimum and will be authorized under emergency situations only. Iridium will be used for voice communications whenever possible. This system is not as reliable as INMARSAT but is about one-third the cost.

Laboratory Space

The general allocation of lab space will be as follows: (refer to page 30)

Forward Dry Lab: XBT computer, swath bathymetry system, ADCP computer, CTD computer, DAS system monitoring

Aft Dry Lab: mooring instrument staging, LADCP servicing, CMiPS staging and servicing, He/T gear storage, gravity meter (in small closet)

Hydro Lab: uncontaminated seawater system (TSG, fluourometer, transmissometer), CFC analysis, pCO_2 system

Baltic Room: CTD operations [Mezzanine: XBT storage]

Bio Lab: oxygen titrations [Salts Closet: salinity analysis]

Wet lab: staging area for mooring equipment

Aquarium Room: staging area for moorings, liquid CO_2 cylinder storage

Science Coolers, Microscope Room: These lab spaces have not been requested during this cruise, but are available for use if needed.

Due to the dynamic nature of the laboratory, please note your space allocation may change.

Laboratory Instruments and Equipment

Please refer to the Equipment Allocation spreadsheet on page 16 for a listing of the laboratory instruments and equipment that will be provided by RPSC, including Microcat CTDs for use on a mooring.

Compressed Gases, LN_2, Ice

Please refer to the Equipment Allocation spreadsheet on page 16 for a listing of the compressed gasses and cryogens that will be provided by RPSC.

21 each 300 cubic foot cylinders of bone dry (99.8%) liquid CO_2 with siphon tube, 2 each cylinders of oxygen, and 2 each cylinders of propane along with regulators and a torch assembly were obtained in New Zealand and are currently aboard the NBP. 13 each cylinders of UHP (99.999%) nitrogen with US-type fittings will be provided by Crary Lab at McMurdo. A nitrogen purifier will be supplied by RPSC and is included in the attached Procurement Report. AnSlope grantees will provide CFC-free regulators for use with the nitrogen tanks.

Laboratory Materials and Supplies Procured

Please refer to the Procurement Report (page 41) for a listing of consumable laboratory materials and supplies purchased by RPSC.

Radioactive Materials

A Radioisotope Usage Authorization has been issued by the NSF allowing operation of two each gas chromatographs (GCs) containing a sealed source totaling 40 mCi of ^{63}Ni during AnSlope I. This permit specifically covers only cruise NBP03-02, so a new permit will need to be obtained for future AnSlope cruises. The authorized users, Guy and Sally Mathieu, will operate the equipment for CFC analysis.

An Authorization to Import Radioactive Materials has been issued by the New Zealand National Radiation Laboratory. This document allows the GCs to enter New Zealand or to be offloaded from the NBP for servicing, if necessary. A separate Export permit to ship the GCs back to the US will be applied for at the appropriate time by RPSC.

The GCs were onloaded to the NBP while it was in Port Hueneme. They will remain on board, either in use or storage until the end of AnSlope III or until directed otherwise by the grantees. After that time they will be returned to the grantee's home institution via normal USAP cargo channels.

No radioactive waste will be generated during AnSlope. The authorized users will not need to maintain RadTrak records during this cruise.

Diving

No SCUBA diving will be conducted during AnSlope.

Remote Sensing

The NBP has a fully functional TeraScan system on the bridge. This system can receive visible, infrared, and microwave data from the NOAA and DMSP satellites. Orbital geometry will determine how often satellite passes are able to be captured. RPSC personnel will provide requested imagery to the science party for planning purposes and to the bridge for ship navigation.

The NBP TeraScan system is capable of using the NASA Bootstrap algorithm for passive microwave imagery. Coordination with the TeraScan operator will be required to determine proper coverage and exact product requirements.

At this time, AnSlope has not applied for a permit to allow real-time decryption of SeaWiFS ocean surface color (i.e. chlorophyll concentration) imagery by the NBP. This type of imagery can be received on the TeraScan system and is available for decryption without a permit approximately 2 weeks after being received. Please notify Karl Newyear if such support is needed. Further information is available at *http://seawifs.gsfc.nasa.gov/SEAWIFS/LICENSE/checklist.html*.

Major Systems and Equipment

Please see the Equipment Allocation Spreadsheet on page 16 for major systems and equipment to be used during this cruise.

The Sea Beam 2112 Multi-beam Sonar System has been decommissioned from the NBP. This system was replaced with a Kongsberg Simrad EM 120 Multi-beam Sonar system and accepted after trials in November 2002. The Simrad will be available for use during AnSlope.

The NBP has the most current version of MB Systems and SeaBeam Seasurvey Advanced software on board. These are capable of merging previously collected SeaBeam data with real-time display of Simrad data. Proper operation of these packages was confirmed during cruise NBP 02-9 when Stan Jacobs was aboard the ship.

Joann Stock and Steve Cande will provide multibeam data from cruises NBP 96-2 and NBP 97-2. Fred Davey has been given permission to use this data as well as any new data collected on NBP 02-9 for a bathymetric chart of the Ross Sea. Stan Jacobs has secured permission from other PIs to use data they collected in the AnSlope study area in the northwest Ross Sea.

Grantee-provided ADCPs which will be used on the moorings each contain a magnetic compass that need to be calibrated during the pre-cruise port call at McMurdo Station. This activity will occur at the beginning of the port call, during fuelling and cargo operations. Karl Newyear has requested a vehicle at McMurdo to remove the compasses from magnetic influences such as the ship's hull. Jay Simpkins will provide other equipment and expertise necessary to complete this task. It should be recognized that the proposed deployment location of these instruments is quite close to the South Magnetic Pole and magnetic compasses designed for mid-latitudes might not work well.

Mooring deployments and recoveries will involve the use of a grantee-provided traction winch. The winch will be plumbed to operate from the NBP's deck hydraulic system. This winch is a closed center, open loop design which is completely compatible with the ship's systems. All the necessary hydraulic fittings, hose, and other hardware are currently aboard the NBP though there has been insufficient opportunity to assemble and test the system yet. As a backup, the grantees have also provided an HPU which can run on shipboard electrical power. Placement of the winch on the main deck will be determined during the pre-cruise port call.

It is desirable to operate the acoustic release deck boxes provided by the grantee using the NBP's hull-mounted transducers. This mode of operation reduces noise, provides a better signal, and can speed the operations of mooring deployment and recovery. Continuing research and discussions are taking place between RPSC, OSU, and EdgeTech regarding how to accomplish this task. The hardware, including all cables, are currently on the NBP, but a copy of the deck release box manual was brought to RPSC HQ. If no resolution is obtained, it is still possible to use the over-the-side transducers to accomplish the same ends but less efficiently.

Small Boat Support

It is not anticipated that small boat support will be necessary during NBP03-02. However, because of the removal of the ice pier from McMurdo during the pre-AnSlope port call, zodiacs will be required for transportation between the NBP and shore for part of this period. Such support will be somewhat dependent upon sea and weather conditions as well as other activities occurring at the time. RPSC Marine Technicians will operate the zodiacs. Zodiac passengers must wear a float coat, Mustang suit, or Helly Hansen suit while in the boat; these will be provided by the NBP.

Close-out Procedures

1. The Chief Scientist and PIs will ensure that all wastes are packaged and labeled according to USAP procedures. RPSC staff will assist as needed.
2. The grantees will clean their lab spaces prior to departing the vessel. This includes swiping of spaces where radioisotopes were used, if applicable, disposing of any other hazardous wastes, and cleaning the floor and counters in lab spaces used by each group. All grantee cargo approved to stay on board the ship will be properly stored and an inventory turned over to the lab supervisor prior to departure.
3. The grantees will return all equipment and/or instruments borrowed from the USAP. Grantees will also inform the MPC or lab supervisor of any missing, damaged, or non-functional equipment or

instruments.

4. The grantees will inform the MPC or lab supervisor if the shipment of samples to the US or elsewhere is planned.
5. The grantees, with the assistance of the MPC and other RPSC personnel, will properly pack and manifest all of their cargo and samples **prior to the ship's arrival in port.** The MPC will coordinate the retrograde (US-bound) cargo effort and each grantee will be provided with forms to fill out which specifically document the cargo contents. Each grantee will be provided with cargo tracking numbers (TCNs) for their cargo which will become part of the offload manifest. These TCNs will allow grantees to monitor the movement of their cargo after it leaves the vessel.

Supporting Information and Tables

AnSlope onload to NBP in Port Hueneme
8-9 November 2002

item	dimensions	weight	TCN	notes
container, open top (mooring floats)	20' container	18,500 lbs	N/A	in hold, inboard position
container, standard (mooring rigging)	20' container	13,000 lbs	N/A	in hold, immediately under hatch
LDEO pallet #1 (empty glass bottles)	48" x 40" x 40"	775 lbs	2215-0014	in helo hangar
LDEO pallet #2 (empty glass amoules)	48" x 40 " x 53"	345 lbs	2215-0018	in helo hangar
LDEO pallet #3 (office supplies, tools)	55" x 43" x 58"	570 lbs	2215-0020	in helo hangar
LDEO pallet #4 (oxygen titrator stuff, ADCP spares)	48" x 40" x 52"	515 lbs	2215-0016	in helo hangar
LDEO pallet #5 (ADCPs, CFC copper tubes)	48" x 40" x 48"	575 lbs	2215-0017	in helo hangar
LDEO pallet #6 (CFC copper tubes)	48" x 40" x 39"	630 lbs	2215-0019	in helo hangar
LDEO pallet #7 (CFC copper tubes)	48" x 40" x 39"	650 lbs	2215-0021	in helo hangar
LDEO pallet #8 (CFC copper tubes)	48" x 40" x 39"	650 lbs	2215-0013	in helo hangar
LDEO pallet #9 (empty glass bottles)	48" x 40" x 47"	775 lbs	2215-0015	in helo hangar
LDEO pallet #10 (empty glass bottles, office supplies)	47" x 35" x 27"	325 lbs	2215-0022	in helo hangar
LDEO pallet #11 (CFC copper tubes)	42" x 32" x 24"	345 lbs	2215-0023	in helo hangar
LDEO FedEx #414689613520 (chems)		17 lbs		on NBP
LDEO FedEx #414689613531 (chems)		17 lbs		on NBP
LDEO FedEx #414689613542 (chems)		17 lbs		on NBP
LDEO FedEx #414689613553 (chems)		17 lbs		on NBP
LDEO FedEx #414689613564 (chems)		20 lbs		on NBP
LDEO FedEx #414689613575 (chems)		19 lbs		on NBP
LDEO FedEx #414689613586 (chems)		16 lbs		on NBP
LDEO FedEx #414689613597 (chems)		16 lbs		on NBP
CFC wooden box #1			2215-6024	in helo hangar
CFC wooden box #2			2215-6024	in helo hangar
CFC wooden box #3			2215-6024	in helo hangar
CFC wooden box #4			2215-6025	in helo hangar
CFC wooden box #5			2215-6025	in helo hangar
CFC wooden box #6			2215-6025	in helo hangar
CFC wooden box #7			2215-6025	in helo hangar
CFC wooden box #8			2215-6026	in helo hangar
CFC wooden box #9			2215-6026	in helo hangar
CFC wooden box #10			2215-6026	in helo hangar
CFC wooden box #11			2215-6026	in helo hangar
CFC wooden box #12			2215-6027	in helo hangar
CFC wooden box #13			2215-6027	in helo hangar
CFC wooden box #14			2215-6027	in helo hangar
CFC red plastic box #1			2215-6027	in helo hangar
CFC red plastic box #2			2215-6027	in helo hangar
CFC red plastic box #3			2215-6027	in helo hangar
LDEO ADCP batteries			2215-0028	DNF, in helo hangar
LDEO ADCP batteries			2215-0029	DNF, in helo hangar
LDEO ADCP batteries			2215-0030	DNF, in helo hangar
OSU traction winch	81" x 48" x 66"	2,200 lbs	N/A	on helo deck
OSU winch HPU	68" x 45" x 56"	1,450 lbs	N/A	in helo hangar
OSU equipment		1430 lbs	2215-0031	DNF, in helo hangar; OSU box #1
OSU equipment		1390 lbs	2215-0032	DNF, in helo hangar; OSU box #2

OSU deck boxes for acoustic releases, computers		475 lbs	2215-0033	DNF, in helo hangar, OSU box #3
OSU equipment??		400 lbs	2215-0034	??
OSU acoustic releases, 6 ea; ADCPs, 2 ea	43" x 12" x 14"	830 lbs	2215-0035	DNF, in helo hangar; OSU boxes #4, 5
OSU acoustic releases, 6 ea	51" x 12" x 14"	680 lbs	2215-0036	DNF, in helo hangar

seawater standards, 100 ea			2215-0010	DNF, in salts closet
XBTs, T-7, 25 cases			2215-0011	in Baltic Room mezzanine
XBTs, T-5, 5 cases			2215-0012	in Baltic Room mezzanine
standard gas, 2 cylinders			2215-6025	grantee-provided, in helo hangar
liquid CO2, with siphon tubes, 21 cylinders	300 cubic foot		N/A	onloaded in NZ; in aquarium room
oxygen, industrial, 2 cylinders			N/A	onloaded in NZ; on helo deck
propane, 2 cylinders	60 lbs		N/A	onloaded in NZ, on helo deck
torch kit and regulators for oxygen and propane			N/A	onloaded in NZ, in MST office

AnSlope chems received (same as 8 FedEx waybills listed above?)

magnesium perchlorate, 1 kg			2215-0009	in white plastic box in helo hangar
methanol, 1 liter			2215-0008	in white plastic box in helo hangar
hexanes, 1 liter			2215-0006	in white plastic box in helo hangar
ethanol, 4 liters			2215-0007	in white plastic box in helo hangar
misc. NaOH / NaI (4 ea 500 ml, 7 ea 250 ml)			2215-0002	in white plastic box in helo hangar
sulfuric acid, 4 liters			2215-2001	in white plastic box in helo hangar

Science Equipment/Systems Allocation

NBP03-02 ANSLOPE 1 OO-215-O
On ship: O:\INVENTRY\LABTECH\ALLOCTMP.XLS
At RPSC: \MARINE\NBP\INVENTRY\LABTECH\ALLOCTMP.XLS
Updated 9 January 2003 by Karl Newyear

QTY = Quantity available
REQ = Total Quantity requested
REM = Quantity remaining

Equipment Responsibility

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Winches/Wire									
DUSH 5 Hydrographic, .322, 3-conductor EM cable (Baltic room)	1	1	0	1		new cable installed in October 02	Winches/Wire - MT	same	
DUSH 9-11 Deep-Sea Trawl, 9/16" wire (stern/starboard)	1	1	0	1		possibly to drag for moorings	Load cells,	same	
DUSH 9-11 Deep-Sea Trawl, .680 Coax EM cable (stern/port)	1	0	1				Slip Rings,	same	
DUSH 5-5 Waterfall Hydrographic, 1/4" mechanical wire (starboard/lower drum)	1	0	1				Metrox Boxes &	same	
DUSH 5-5 Waterfall hydrographic, .322 3-conductor EM cable (starboard/upper drum)	1	0	1				Winch data - ET	same	
Tugger Winch	1	1	0	1		for mooring operations			
Nets and Trawls									
Blake Trawl, 5 ft.	1	0	1				Nets, Frames &	same	
Otter Trawl, 18ft	1	0	1				Mechanical - MT	same	
Isaac Kidd Midwater Trawl, 1 meter, 3 frames	1	0	1				"	"	
Flat Trawl, 35'	1	0	1				Electronics - ET	same	
MOCNESS - 10m	1	0	1				"	"	
MOCNESS - 1m	1	0	1				"	"	
Tucker Trawl, opening/closing, 3 nets, 1m	1	0	1				"	"	
Optical Plankton Counter (for use with MOCNESS)	1	0	1				ET	ET	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Aquaria and Deck Incubators									
Aquaria, specimen holding tanks	4	0	4			3 Xactic tanks offloaded in CHC	MT	MT	
Aquarium room/Helo deck uncontaminated s.w. line	1	0	1			Large pump	MT	MT	
Wetlab uncont'd s.w. line w/debub & de-ice	1	0	1			Small pump	MT	MT	
Deck incubator, plexiglas, 1/4" lid, 63LX35.75WX5"D useable, in 3/4", out 2.5", NSF #04629	1	0	1				MST	MST/MT	CHCHwrehouse
Deck incubator, plexiglas, 1/4" lid, 63LX35.75WX5"D useable, in 3/4", out 2.5", NSF #02290	1	0	1				"	"	9366-W539
Deck incubator, plexiglas, 1/4", 62Lx48Wx9"D useable, adjust to 7.5"D, in 3/4", out 1.5",NSF#02283	1	0	1				"	"	9366-W540
Deck incubator, UV-transparent, 1/2", 28Wx50Lx13H" useable, in 3/4", out 1 1/2" PVC, NSF #02281	1	0	1				"	"	7366-w408
Deck incubator, UV-transparent, 1/4", 40Lx21Wx12"H useable, in 3/4", out 1 1/2" PVC, NSF #02282	1	0	1				"	"	9366-W550
Deck Incubator, ACRYLIC, NO LID, 37.25Wx48.75Lx30"D, IN&OUT 2.5", IN 10" F/TOP, OUT 3" NSF #02289	1	0	1				"	"	7366-W407
Hydro Lab Uncontaminated Seawater System	1	1	0	1					
Surface Seawater Sampling									
Fluorometer, Turner 10-005, in line, digital through TSG	1	1	0	1			MST (incl. budget &	MST (ET if no mst)	
Thermosalinograph	2	1	1	1			calibration)	"	
LDEO pCO2 Equilibration System	1	1	0	1			"	"	
Water Column Sampling						backup CTD system and sensors will be available			
CTD (Seabird 911+), max depth 6800m	3	1	2	1			ET	ET	
Sea-Bird internal pressure sensor (6800m)	3	1	2	1			"	"	
Sea-Bird primary temperature sensor (6800m)	11	1	10	1			"	"	
Sea-Bird primary conductivity sensor (6800m)	11	1	10	1			"	"	
Sea-Bird primary pump (6800m)	10	1	9	1			"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Sea-Bird secondary temperature sensor (6800m)	11	1	10	1			"	"	
Sea-Bird secondary conductivity sensor (6800m)	11	1	10	1			"	"	
Sea-Bird secondary pump (6800m)	10	1	9	1			"	"	
Sea-Bird dissolved O2 sensor (6800m)	7	1	6	1			"	"	
Biospherical PAR Sensor QSP-200L4S (1000m Scalar Collector)	3	0	3				"	"	
Biospherical PAR Sensor QCP-200L (1000m Cosine Collector)	1	0	1				"	"	
Chelsea Chlorophyll-A Fluourometer (5000m)	2	0	2				"	"	
Sea-Tech Deep Transmissometer (6000m)	2	0	2				"	"	
Sea-Tech Shallow Transmissometer (2000m)	1	0	1				"	"	
Sea-Tech, LSS light scattering sensor (6000m)	2	0	2				"	"	
OIS 12 kHz pinger	3	1	2	1			"	"	
Datasonics Altimeter	3	0	2				"	"	
Sea-Bird Bottom Contact Switch	2	1	1	1			"	"	
Niskin bottle, GO, 5L	24	0	24				MT	MT	
Niskin bottle, GO, Lever-action, 10L	28	0	28				"	"	
Niskin bottle, Bullister design, 10L	26	24	2	24		grantee providing baked O-rings	"	"	
Niskin bottle, GO, 30L	20	0	20				"	"	
XBT/XCTD Launcher, Sippican MK-12	1	1	0	1			ET	ET	
Microcat	4	3	1	3		being hand-carried to NBP	"	"	
Benthos TDR 500 & 2500m	1	0	1				"	"	
Seacat	1	0	1				"	"	
CMiPS microstructure profiler (incl. battery pack)	1	1	0	1		being upgraded at RGL, to be mounted on CTD frame	"	"	
Boating Support									
Zodiac Mark V with 45-hp outboard motor	2	1	1	1		occasional use only	MT	MT	

Sonar									
Swath Mapping System - Simrad EM 120	1	1	0	1			IS	IS	
RDI ADCP, 150 kHz Narrow-Band, VM-150	1	1	0	1			ET	ET	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Simrad EK-500 - 38, 120 & 200 kHz, Bioacoustic and Bathymetry Sonar	1	1	0	1		grantee to provide laptop and media for data logging; set up as on GLOBEC	"	"	
HP PaintJet printer for Simrad EK-500	1	0	1				ET	ET	
ODEC BATHY-2000, 3.5 kHz Chirp Sub-Bottom Profiler, 8300 Watts	1	1	0	1		sub-bottom not required	"	"	
HP PaintJet printer for ODEC BATHY-2000	1	0	1				ET	ET	
Knudsen 320 B/R 3.5 kHz Chirp Sub-Bottom Profiler, 2000 Watts	1	0	1				"	"	
Thermal Graphics Recorder, EPC-1086	1	1	0	1			"	"	
Thermal Graphics Recorder, EPC-9802	2	0	2				"	"	
HTI Towed Bio-Acoustic Sonar, 38 & 120 kHz	1	0	1				"	"	
ODEC / Raytheon 12 kHz PDR (for 12 kHz pinger tracking)	1	1	0	1			"	"	
Datasonics Chirp Sidescan Sonar/Sub-Bottom Profiler, 1000m max depth	1	0	1				"	"	
Meteorological System/Instruments									
Met system	1	1	0	1			ET	ET	
Thermometer	3	1	2	1			"	"	
Humidity/dry temp	2	1	1	1			"	"	
Barometer	2	1	1	1			"	"	
Anemometer	3	2	1	2			"	"	
Eppeley Pyranometer (PSP) and Pygeometer (PIR)	1	1	0	1			"	"	
Biospherical PAR Radiometer QSP-240/P	2	1	1	1			"	"	
Biospherical PRR. Mast and Profiling Radiometers	1	0	1				"	"	
Biospherical PUV/GUV Radiometer	2	1	1	1			"	"	
TeraScan	1	1	0	1			"	"	
Time and Navigation Instruments									
TRAK Rubidium Time Standard Clock	1	1	0	1			ET	ET	
TRAK GPS	1	0	1				"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Ashtech ADU2 Attitude GPS	1	1	0	1			"	"	
Trimble P-Code GPS	1	1	0	1			"	"	
Marine Geology and Geophysics (MG&G) Equip									
Gravimeter (Lacoste-Romberg)	1	1	0	1			ET	ET	
Magnetometer, EG&G 811	2	0	2				"	"	
OYO DAS-1, 48-channel reflective seismograph sys	1	0	1				"	"	
Lookout Geophysical	1	0	1				"	"	
Syntron Gun Controller	2	0	2				"	"	
Gradiometer, Magnetic, EG&G 811G	1	0	1				"	"	
Streamer, 1200-m, 48-ch, solid array	1	0	1				"	"	
Streamer, 300-m, 48-ch, solid array	1	0	1				"	"	
Streamer, Benthos single-channel	1	0	1				"	"	
Streamer, ITI single-channel	1	0	1				"	"	
Syntron streamer leveling birds	4	0	4				MT	MT	
SSI G/I Airgun, 210 cu. in.	6	0	6				"	"	
SSI G/I Airgun, 50 cu. in.	2	0	2				"	"	
SSI Watergun, 25 cu. in.	1	0	1				"	"	
Bolt Longlife 1500LL Airgun, 1000 cu. in.	1	0	1				"	"	
Bolt Longlife 1500LL Airgun, 500 cu. in.	1	0	1				"	"	
Bolt Longlife 1500LL Airgun, 450 cu. in.	1	0	1				"	"	
Bolt Longlife 1500LL Airgun, 400 cu. in.	1	0	1				"	"	
Bolt Longlife 1500LL Airgun, 350 cu. in.	1	0	1				"	"	
Bolt Longlife 1500LL Airgun, 300 cu. in.	1	0	1				"	"	
Triton/Elics Data Logger	1	0	1						
Sonobouy system	1	0	1						
Coring Equipment									
Jumbo Piston Core	1	0	1				MT	MT	
Std Piston Core	1	0	1				"	"	
Gravity Core	1	0	1				"	"	
Kasten Core	1	0	1				"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Mega Corer	1	0	1				"	"	
Science Equipment/Instrument Allocation									
Air filtration unit, stand alone, Lakeaire Intl LA-500	1	0	1				MST	MST	
Balance, Electric, Mettler PM4000, Topload, 4100g x 0.1, 17cm dia pan	1	0	1				"	"	
Balance, Mettler, AE-240S, 200g x 0.01, 10cm dia pan, built in calibration	1	0	1				"	"	
Balance, Portable, Ohaus Elect CT600, 600g x 0.1, 10.2 cm dia pan, auto-cal	2	0	2				"	"	
Balance, Triple Beam, Ohaus, 2610g x 0.1, 13cm dia pan, ss	2	0	2				"	"	
Bath, circulating, Neslab RTE-110D, -30-130C, +/- 0.01C, Bath 5x5x5", 5L	3	0	3			One not cooling 2/97	"	"	
Bath, circulating, Neslab RTE-210D, -28-130C, +/- 0.01C, Bath 10x10x5 3/4", 12.3L	2	0	2				"	"	
Bath, circulating, Neslab RTE-211D, -28-130C, +/- 0.01C, Bath 10x10x5 3/4", 12.3L	6	0	6				"	"	
Bath, Dri-, modular, Thermolyne 16525, 25-110C, +/- 0.1C, 6, 13, 16mm tube size blocks	2	0	2				"	"	
Bath, Dri-modular, six block, ambient to 150C, +/- 0.5C, VWR 13259-038, 50ml corning, 15 ml conical, 1.5ml microtaper block sizes	3	0	3				"	"	
Bath, heat, 5-70C, +/- 0.1C, shaking, timer, Yamato YB521	1	0	1				"	"	
Camera Holder, 0-60cmH, 14x14", Beseler CS14	1	0	1				"	"	
Centrifuge, Beckman GS-6, 4-place 250 & 500ml	1	0	1				"	"	
Centrifuge, clinical, Clay Adams Dynac II 101, horiz 4pl/50ml, 8pl/15ml, fixed 4pl/50ml, 24pl/15ml	2	0	2				"	"	
Centrifuge, micro, -20-+40C, 36 pl/1.5&2ml, Beckman GS-15R, used w/rads	2	0	2				"	"	
Centrifuge, micro, 18pl/1.5ml, 11mm bore, Eppendorf, 5415C	2	0	2				"	"	
Chisel, ice	2	0	2				"	"	
Conductivity Meter, portable, Orion 115	1	0	1				"	"	
Conductivity Cell f/ Orion 115, Orion 011050	3	0	1				"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Cooler, walk-in, -29 TO +100C, sink, 2 linear meters bench space, cabinets	2	0	2				"	"	
Data Logger, Li-Cor LI-1000, for irradiance sensors	2	0	2				"	"	
Dispenser, 10-50ml, btltp, 28, 38, 45mm adapters, Brinkmann 50100502, 1 used w/fixatives	2	0	2				"	"	
Dispenser, 2-10ml, btltp, 24, 28, 38mm adapters, Brinkmann 50100308, 1 used w/fixatives	7	0	7				"	"	
Dispenser, 5-25ml, btltp, 28, 38, 45mm adapters, Brinkmann 50100405, both used w/fixatives	1	0	1				"	"	
Dispenser, repipet, 0-0.5ml, w/amber sq glass jar, used with TCA	2	0	2				"	"	
Dispenser, repipet, 0-2.5ml, w/amber sq glass jar, 1 w/fixatives, 1 w/ecolume, 1 w/?	2	0	2				"	"	
Dispenser, repipet, 0-5ml, w/amber sq glass jar	3	0	3				"	"	
Dispenser, repipet, 0.4-2ml, digital Brinkman, used w/?	1	0	1				"	"	
Dispenser, 1-5ml, btltp, 28, 38, 45mm adapters, Brinkmann 022-22-100-1	1	0	1				"	"	
Dispenser, digital, 0.2-2ml, btltp, Brinkmann 0650645	1	0	1				"	"	
Dispenser, repipet, 0.25-20mL, w/amber glass btle, Repipet II	1	0	1				"	"	
Filter holder, 142mm, ss, 1.5L capacity, 125 psig inlet, 9/16" ID, silicone gasket, Millipore 316	1	0	1				"	"	
Filtration manifold, 10pl, 25mm, Hoefer FH225V, 1 used w/rads	3	0	3				"	"	
Filtration manifold, 12pl, 25mm, circular, Millipore, used with rads	1	0	1				"	"	
Filtration manifold, vacuum, PVC, 6-pl, 2 used w/fixatives	5	0	5				"	"	
Filtration manifold, vacuum, SS, 3-pl, 4 w/ rads, 2 others w/fixatives	7	0	7				"	"	
Filtration, 13mm / 100ml glass funnel	10	0	10				"	"	
Filtration, 25mm / 300ml glass funnel	6	0	6				"	"	
Filtration, 25mm / 150ml glass funnel	3	0	3				"	"	
Filtration, filter funnel glass base, 13mm glass fritted, f/ 100ml funnel	6	0	6				"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Filtration, filter funnel glass base, 25mm, glass fritted	6	0	6			use w/ 15ml and 300ml funnel	"	"	
Filtration, 25mm / 15ml glass funnel	19	0	19				"	"	
Filtration, filter funnel glass base, 25mm , ss screen	12	0	12				"	"	
Filtration Assy, 25mm / 200ml Polysulfonate, Gelman	6	0	6				"	"	
Filtration Assy, 47mm / 300mL glass funnel w/ 47mm glass fritted base	5	0	5				"	"	
Filtration Assy, 47mm / 300mL glass funnel w/ 47mm ss screen glass base	10	0	10				"	"	
Filtration, 47mm / 300ml glass funnel	2	0	2				"	"	
Fluorometer, analog, Turner 10-005,	2	0	2				"	"	
Fluorometer, digital, Turner 10-AU-005, 1 dedicated to TSG	3	0	3				"	"	
Freezer, ultralow, -18 to -85C, chest, 20 cu ft, 70Lx19Wx26"D, Baxter	1	0	1				"	"	
Freezer, ultralow, -18 to -85C, chest, 9 cu ft, 16x47x20"D, Revco/So-Low	1	0	1			2nd in PA warehouse	"	"	
Furnace, muffle, programmable, 100-1093C, 860 cu in, 12 3/4x10x6 3/4", Thermolyne F6038C	2	0	2				"	"	
Geiger counter, Bicron Survey Meter 50 PGM	1	0	1				"	"	
Hood, absorber, 31.5x25" working space, 87 cu ft/min, Captair Labx, all used w/fixatives	6	0	6				"	"	
Hood, fume, 25Dx39"W working area, kemresin, installed in Bio Lab	1	0	1				"	"	
Hood, fume, 26Dx60"W working area, ss, installed in Rad Van	1	0	1				"	"	
Hood, laminar flow, bench model, 2x2' working area, corrosion-res, Envirco 100+, trace metal use	2	0	2				"	"	
Hot Plate/Stirrer, 6x8", 65-510C, Corning PC-320	3	0	3				"	"	
Hot Plate/Stirrer, 8x8", 65-500C, Thermolyne SP46925	2	0	2				"	"	
Ice maker, 200 lbs/hr, 75 lb capacity, installed in Hydro Lab	1	0	1				"	"	
Illuminator, fiber optic, two arm, Dolan-Jenner 180	7	0	7				"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Incubator, lighted, -10 to +50C, +/- 1-3C, 17.8cuft, ID 20Dx27Wx57"H, Precision 816	2	0	2				"	"	
Incubator, lighted, -10 to +50C, +/- 1-3C, 17.8cuft, ID 20Dx27Wx57"H, Precision 818	3	0	3				"	"	
Irradiance Sensing, Datalogger, LICOR 1000, see Datalogger entry	x	0	x				"	"	
Irradiance Sensor, frame, lowering, f/LI-193SA	2	0	2				"	"	
Irradiance Sensor, handheld, immersible tip, BSI QSL-100	1	0	1				"	"	
Irradiance Sensor, pyranometer, BNC 50', LI-200SA	3	0	3				"	"	
Irradiance Sensor, pyranometer, non-BNC 50', LI-200SZ	3	0	3				"	"	
Irradiance Sensor, quantum, BNC 50', LI-190SA	3	0	3				"	"	
Irradiance Sensor, quantum, non-BNC, 50', LI-190SZ	3	0	3				"	"	
Irradiance Sensor, underwater spherical, LI-193SA	2	0	2				"	"	
Light Table, 16x20", Searight WTB 16/2	1	0	1				"	"	
Liquid scint counter, w/monitor, external disk, printer, Beckman LS6500	2	0	2				"	"	
Microscope, dissecting, Leica/Wild M3C, 2 darkfield bases, camera cnxns	4	0	4				"	"	
Microscope, petrographic, polarizing, Nikon Labophot	2	0	2				"	"	
Microscope, Zeiss, compound, Axioskop w/EPI, w/MC80 camera system	1	0	1				"	"	
Microscope, Camera Syste, Video-Cooled, w/adaptors, ctrl panel	1	0	1			on Axioscop	"	"	
Microscope, Zeiss, compound, STD 16 WL	0	0	0				"	"	
Microscope, Zeiss, compound, STD-25 w/ EPI, w/MC80 camera system	1	0	1				"	"	
Microscope digital video system	1	0	1				"	"	
Mixer, Thermolyne 16700, padded, circular	0	0	0				"	"	
Mixer, Speci-mix aliquot rocker, Thermolyne, Type 26100/M7100, Model 26125	1	0	1				"	"	
Mixer, variable speed, Fisher 232	1	0	1				"	"	
Mixer, vortex, Genie-II, VWR	4	0	4				"	"	

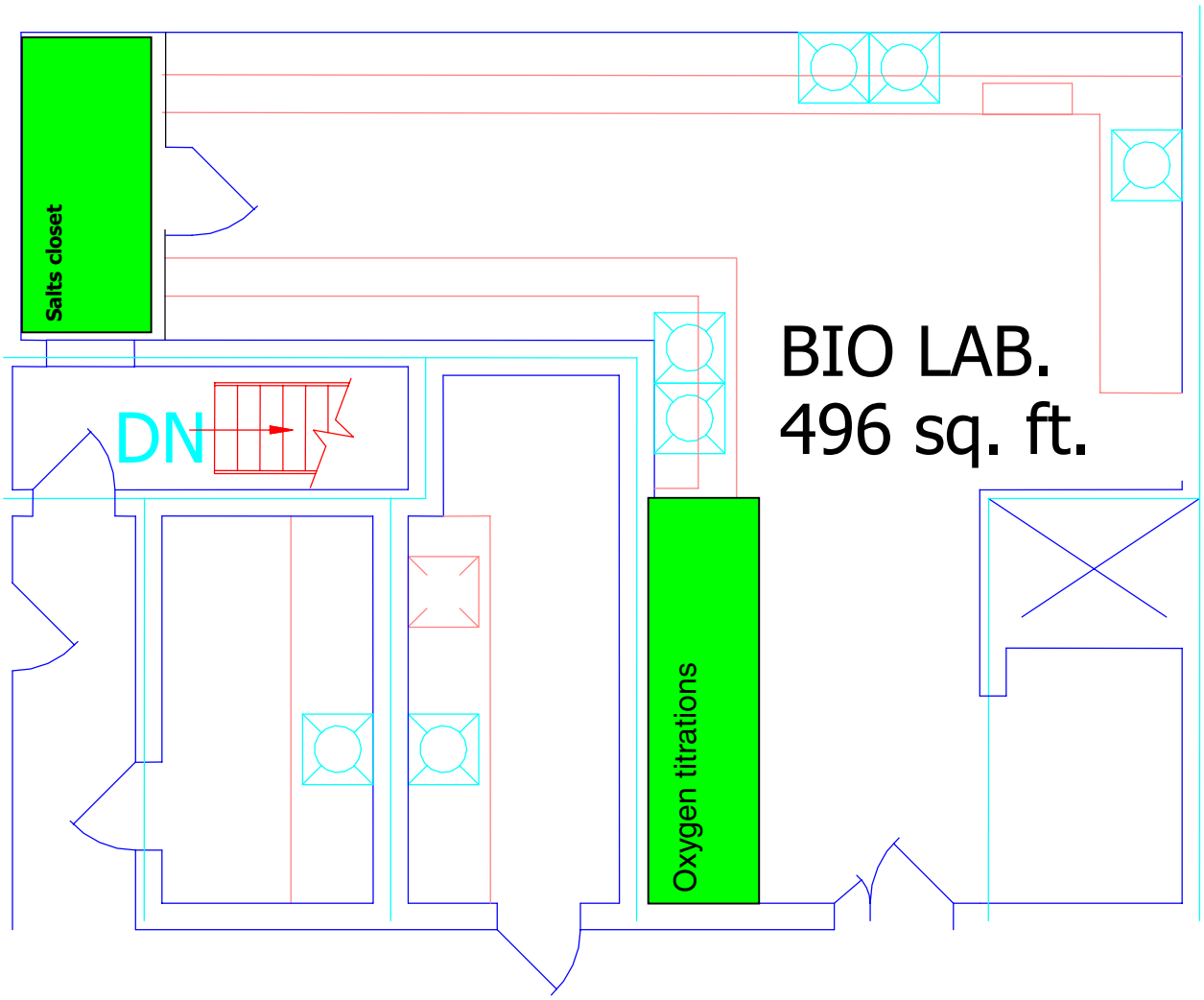
	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Monitor, total organic carbon, UV lamp assy, Millipore ZFA 106001, on NANOpure UV system	1	0	1				"	"	
NANOpure - installed in the Hydrolab	2	1	1	1		additional in catwalk	"	"	
NANOpure UV, ultra low organics - installed in the Aft Dry Lab	1	1	0	1			"	"	
Nutrient Analyzer, Alpkem RFA II, triple channel	1	0	1				"	"	
Oven, bench, gravity convection, 40-260C, ID 16Wx14Dx16"H, Blue M	3	0	3				"	"	
Oven, bench, gravity conv, 50-225C, inside 18Wx18Dx20"H, 3.75 cu ft, Fisher	1	0	1				"	"	
Oxygen titrator (Scripps photometric) auto, w/printer, PC clone, dosimats, etc	1	0	1				"	"	
Oxygen titrator (Langdon/LDEO amperometric), auto, w/printer, PC clone, dosimats, etc	1	1	1	1			"	"	
pH meter, 0-15.99, resolution 0.001/0.01/0.1, temp -5-100C in 0.1C, Beckman PHI34	1	0	1				"	"	
pH meter, digital, -2-19.99, resolution 0.01/0.1, temp -5-105C in 0.1C, Orion 520A	5	0	5				"	"	
pH probe, combi, f/Orion 520A, 8102BN	5	0	5				"	"	
pH probe, Triode, f/Orion 520A, 9157BN	2	0	2				"	"	
Pipetter, Eppendorf 4810, 500-2500ul, both new 2/97	3	0	3				"	"	
Pipetter, Oxford, 1-5ml, p/n 8885890007	2	0	2				"	"	
Pipetter, Pipetman, P-10ML, Gilson/Rainin	2	0	2				"	"	
Pipetter, Pipetman, P-10 ul, Gilson/Rainin	3	0	3			one more missing 2/97	"	"	
Pipetter, Pipetman, P-100 ul, Gilson/Rainin, 1 used w/fixatives	5	0	5				"	"	
Pipetter, Pipetman, P-1000 ul, Gilson/Rainin, 1 used w/rads, 2 w/fixatives	8	0	8			two more missing 2/97	"	"	
Pipetter, Pipetman, P-20 ul, Gilson/Rainin	6	0	6				"	"	
Pipetter, Pipetman, P-200 ul, Gilson/Rainin, 2 used w/fixatives	13	0	13				"	"	
Pipetter, Pipetman, P-5000 ul, Gilson/Rainin, 2 used w/fixatives	7	0	7			3 more missing 2/97	"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Pipetter, repeater, Eppendorf 4780, for combi-tips, 1 used w/rads	2	0	2				"	"	
Plankton Counter, Interface Sys MCC-20A	1	0	1				"	"	
Pump, vacuum, diaphragm, GastDOAP104AA, 2 w/ rads, 6 w/ fix., 5 gen. Use	13	0	13			borrowed 7 McM 8/96, 2 dead 1/97 replaced w/PStn units	"	"	
Pump, vacuum, hand-operated, Nalgene 6130-0020	1	0	1				"	"	
Pump, vacuum, oil, impeller, GAST 0523V4AG180DX	2	0	2			+1 McM 8/96	"	"	
Refractometer, salinity, handheld, temperature compensated, Reichert-Jung10419	1	0	1				"	"	
Refrigerator, underbench, 5 cuft, w/0.5 cuft freezer, Baxter FSR54AOC, Bio, Hydro Labs, Rad Van	2	0	2				"	"	
Refrigerator, upright, 11.8cuft, w/2.1cuft freezer, Baxter FSR54AOC, Aft Dry Lab, Helo Hanger Wkshp	2	0	2				"	"	
Regulators, SS, 2 stage, 3000 psig, CGA 350 (special gas)	1	0	1				"	"	
Regulators, SS, 1 stage, 3000 psig, CGA 180 -- CO2 Lecture Bottle	1	0	1				"	"	
Regulators, Brass, 2 stage, 3000 psig, CGA 320 (CO2)	1	0	1				"	"	
Regulator, CGA 510 (propane), Single Stage, 0-50 PSI	2	0	2				"	"	
Regulators, SS, 2 stage, 3000 psig, CGA 540 (O2)	1	0	1				"	"	
Regulators, SS, 2 stage, 3000 psig, CGA 580 (N2)	5	0	5				"	"	
Regulators, SS, 2 stage, 3000 psig, CGA 590 (Air, industrial grade)	3	0	3				"	"	
Regulator, fittings, for NZ cylinders, Argon/He	1	0	1				"	"	
Regulator, Chilean fittings, N2	1	0	1				"	"	
Regulator, NZ cylinders, Comweld type 30, CO2	1	0	1				"	"	
Salinometer, Autosal, Guildline 8400B	2	2	0	2		salinity standards on board	"	"	
Shaker, orbit-, 25/100/250ml rack, 28x34cm table, 4-400 orbits/min, Labline 3520	2	0	2				"	"	
Spectrophotometer, UV/Vis, w/monitor, 1 w/printer, Beckman DU640	2	0	2				"	"	
Spectrophotometer, UV/VIS, Scanning, dual beam, Perkin Elmer Lambda 18	1	0	1				"	"	

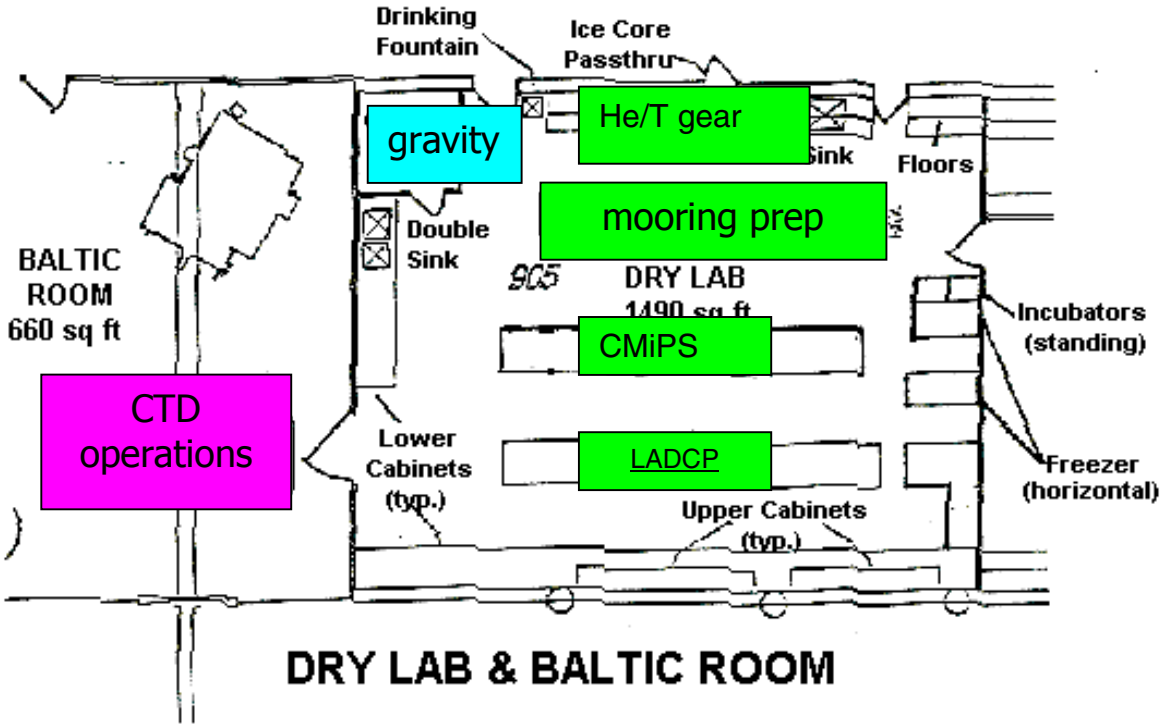
	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Stir plate, 10x10", Corning PC-610, see also Hot plate	2	0	2				"	"	
Thermometer, recording, Tempscribe, w/pens, chart paper	0	0	0				"	"	
Thermometer, digital, -55-150C (no F), 0.1 degree resolution, Tegam 866	5	0	5				"	"	
Thermometer, digital, C/F, VWR 6122060, 0.1 degree resolution, Fisher 150781	4	0	4			used in lab reefers.	"	"	
Thermometer, waterproof, K-type probe, C/F, 1.0 degree resolution, Fisher 1507714	8	0	8			used in lab reefers.	"	"	
Ultrasonic Cleaner, 12x6x6"D, 6L, Branson 3200	1	0	1				"	"	
Ultrasonic Cleaner, 12x9x6", 10L, heat, timer, degassing, Ney 300, Fisher 15-336-6	1	0	1				"	"	
Uncontaminated Seawater Line in Hydro Lab	1	0	1				"	"	
Vibration free slab, vibraplane, microscopy, max 275 lbs, 20x24" surface, Kinetic Sys Benchmate	5	0	5				"	"	
Vibration table, w/ compressor	1	0	1				"	"	
COMPRESSED GASES									
Air, 99.9%, zero grade, size A, 311cuft, CGA590	0	0	0				MST	MST	
Carbon Dioxide, 99.8+%, size 50lb/440cuft	0	0	0				"	"	
Carbon Dioxide, LIQUID, "bone dry," 3AA2265 (CGA 320)	0	21	21	21		onloaded in NZ	"	"	
Nitrogen, 99.998%, size A, 305 cu ft	0	13	13	13		to be provided by McMurdo, with US-type fitting	"	"	
Nitrogen, Commercial grade	0	0	0						
Oxygen, 99.9999%, size K, 308 cu ft	0	0	0				"	"	
Oxygen, industrial grade	0	2	2	2		onloaded in NZ, with regs & torch			
Propane	0	2	2	2		onloaded in NZ, with regs & torch	"	"	
CRYOGENIC EQUIPMENT & MATERIALS / PACKING & SHIPPING SUPPLIES									
Dewar, 160L, storage, liquid nitrogen	0	0	0			not in MST inv	MST	MST	
Dewar, 50L, storage, liquid nitrogen	0	0	0			not in MST inv	"	"	

	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Dewar, 35L, liquid nitrogen, 10 canisters, 81 working days, 0.27L/day evap 'refrigerator'	0	0	0				"	"	
Dewar, 4L, liquid nitrogen, 0.4L/day evap	0	0	0				"	"	
Dry shipper, 15L, liquid nitrogen, ?L/day evap	0	0	0				"	"	
Dry shipper, 3-5L, liquid nitrogen	0	0	0			Borrowed from MCM	"	"	
Liquid Nitrogen, liters	0	0	0				"	"	
Blue Ice, pounds	0	0	0				"	"	
Dry Ice, pounds	0	0	0				"	"	
Freeze safe: 8x6x12" ID	0	0	0				"	"	
Freeze safe: 11x11x12" ID	0	0	0				"	"	
Freeze safe: 10.5x7.5x10.5" ID	0	0	0				"	"	
Freeze safe: 14x23x24" ID	0	0	0				"	"	
Freeze safe: 17x17x13" ID	0	0	0				"	"	
EQUIPMENT PROVIDED BY GRANTEES									
LADCP (incl. battery pack)				1		to be mounted on CTD rosette			
CFC sampling equipment				1					
acoustic mooring releases and deck box				11					
mooring instrumentation (except for 3 ea microcats noted above)									
mooring anchors, 23 each				23					
traction winch				1					
HPU for traction winch				1					
PROVOR float				1					
baked O-rings for use on CTD rosette bottles									
HAZARDOUS WASTE									
Winkler Titration waste x 500 L									
Chemicals ordered, not sure if they will produce waste. Contact grantee.									

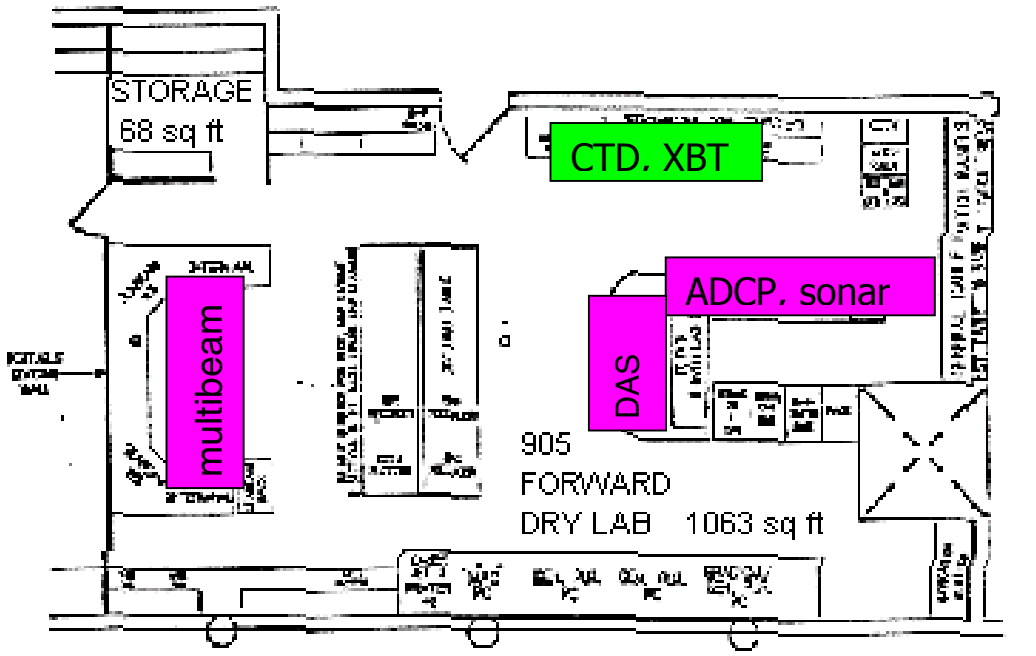
	Qty	Req	Rem	OO-215	Cruise Questions:	Equipment Comments:	Shore Support	At Sea Support	
Magnesium perchlorate (1 kg), Methanol (1L), Hexanes (1L), Ethanol (4L)									
ENVIRONMENTAL RELEASES									
XBT probes x 420 each									
Mooring Anchor x 17,300 kg									
RADS Permit									
RADS: 63Ni x 1 at 40mCi actitivity in sealed source (in GC)									
Dissolved Oxygen Chemicals									
Check with grantee to see how much they need of the following chems for O2 Titration Assay:									
Sodim Thiosulfate - Check Inv on NBP									
Potassium Iodate - Check Inv on NBP									
Need to prepare KI3 Standard at Crary or Home Institution?									
Need to pre-weigh Sodium Thiosulfate Where?									
DO2 Chems sent by grantee already on board NBP:									
NaOH/NaI: 4 x 500mL = 2L									
Sulfuric Acid: 7 x 250ml = 4L									


Salts closet
DN
BIO LAB.
496 sq. ft.
Oxygen titrations

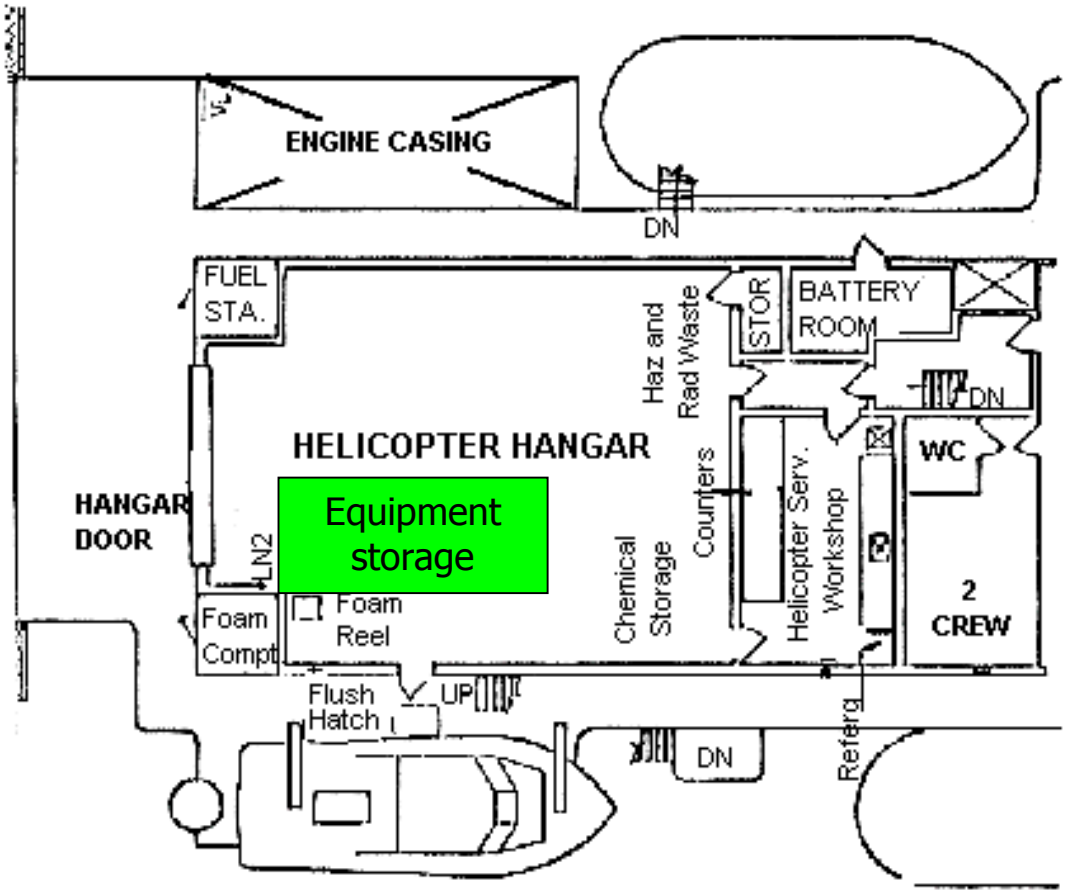
Section 7: NBP Deck Diagrams and Lab Space Information

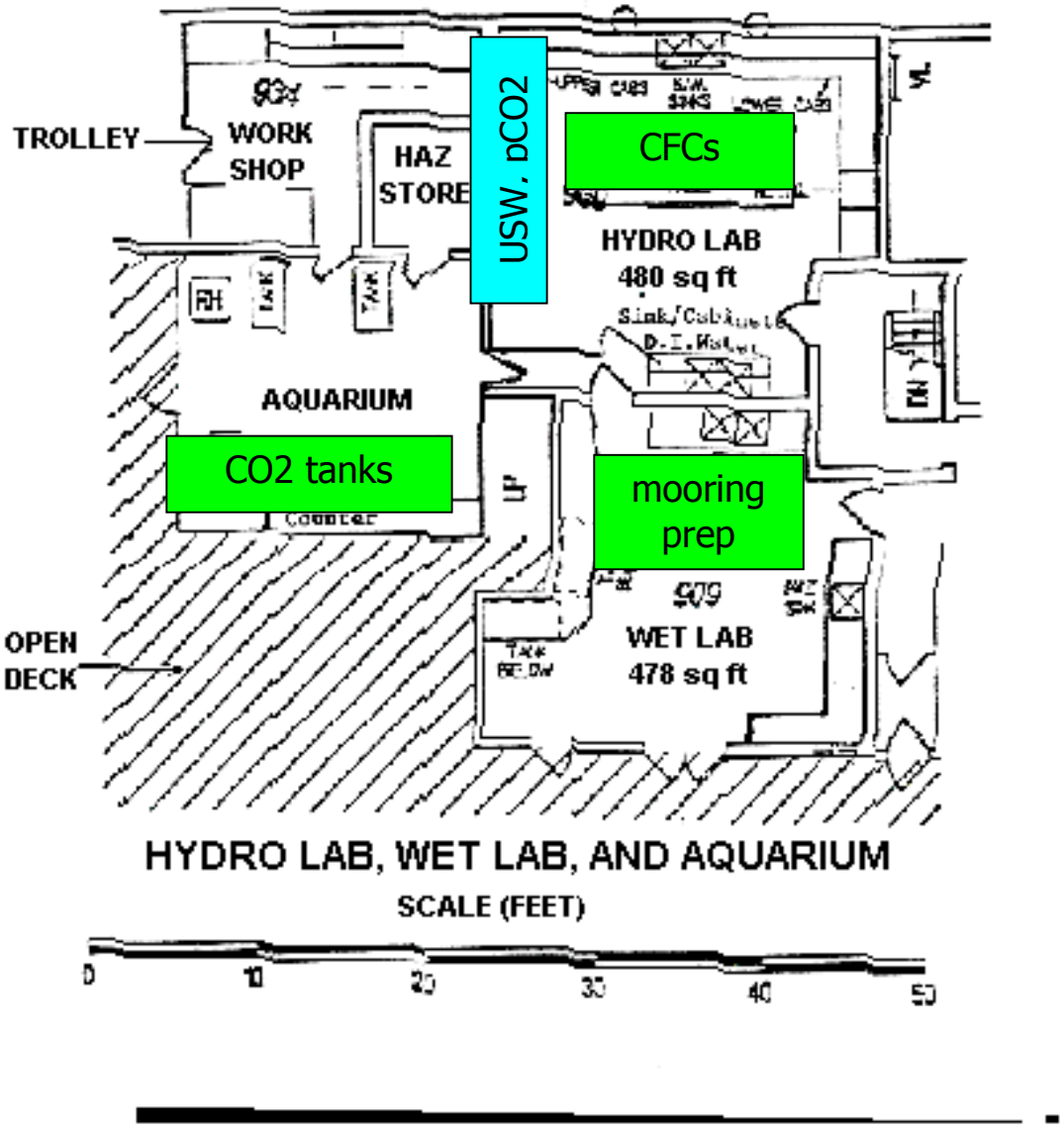


DRY LAB & BALTIC ROOM

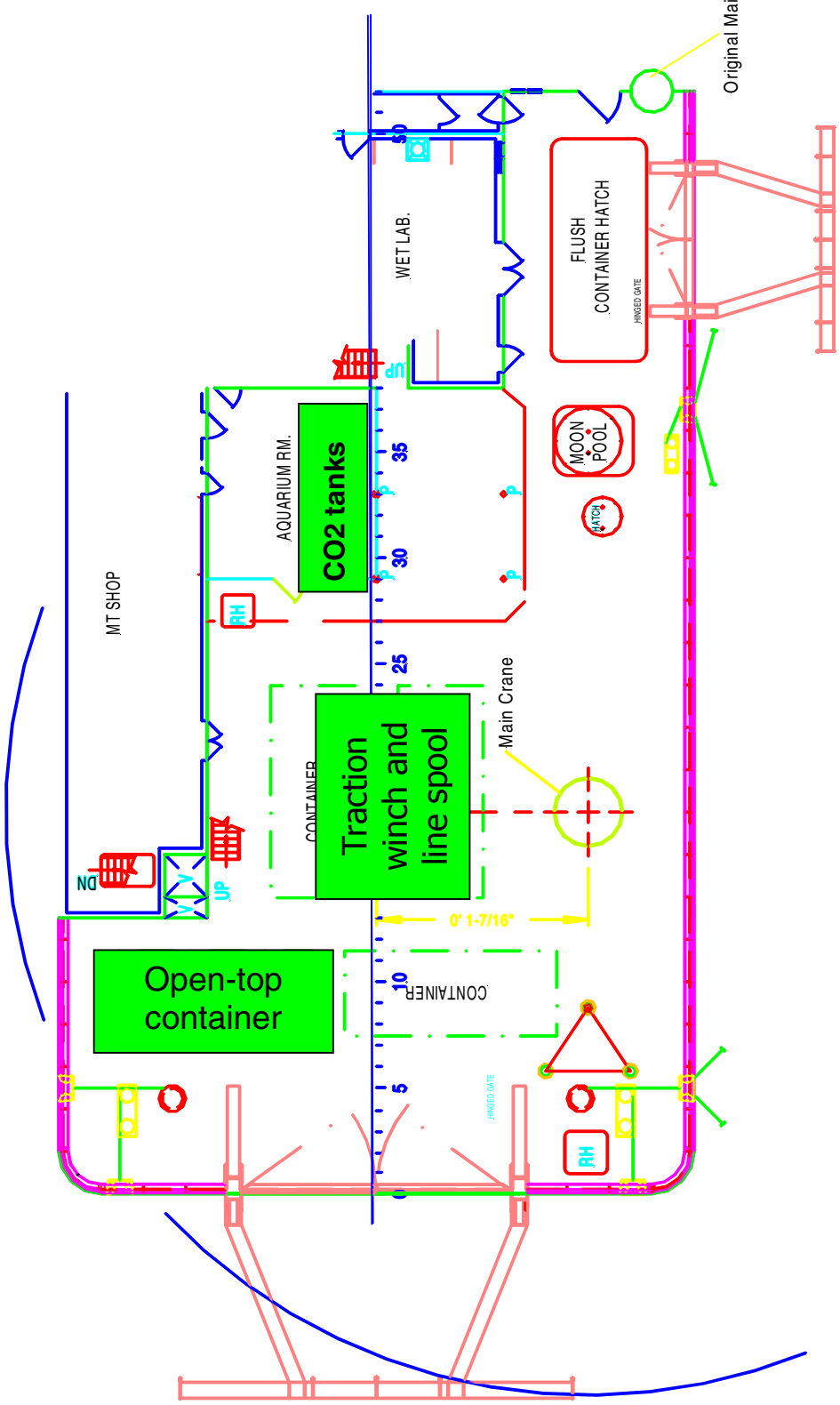


FORWARD DRY LAB


ENGINE CASING
DN
FUEL STA.
Haz and Rad Waste
STOR
BATTERY ROOM
DN
HELICOPTER HANGAR
WC
HANGAR DOOR
Equipment storage
LN2
Counters
Helicopter Serv. Workshop
Chemical Storage
Foam Compt
Foam Reel
2 CREW
Flush Hatch
UP
DN
Refer


TROLLEY
WORK SHOP
HAZ STORE
USW, pCO2
CFCs
HYDRO LAB
480 sq ft
AQUARIUM
CO2 tanks
mooring prep
OPEN DECK
WET LAB
478 sq ft
HYDRO LAB, WET LAB, AND AQUARIUM
SCALE (FEET)
0
10
20
30
40
50

R/V NATHANIEL B. PALMER
Main Deck-Aft



Vessel Email Policy

USAP participants and support staff on USAP research vessels may use the vessel email systems for both program and private email reception and transmission, subject to general email policies for the USAP. Each standard user is allowed a quota of 25KB (25600 bytes) per user per day (including incoming as well as outgoing email traffic) calculated and accumulated for the duration of the cruise and expendable when and how the user sees fit.

This quota is exclusive of specific Science Information Package (SIP) requirements and TEA document transfers. The SIP process contains dialogue for grantee requests for additional data/document transfers. The quota is calculated using the current HSD budget, prorated on a per user basis assuming full berthing and a full ship's operating schedule. "Privileged" or work-related accounts would be set up for the ADMIN (IT), Marine Projects Coordinator (MPC), ECO officers and RPSC technical staff (ET, MT, MST). These privileged accounts have higher quotas, as well as a higher value for the maximum individual message size (initially at 75KB as of 4/01/02 for both incoming and outgoing messages). These privileged accounts will be monitored to ensure that the established quotas are adequate to serve the needs of the designees and to ensure that the accounts are not abused. RPSC shall advise the NSF when analysis of financial records and data transmission records indicate that a change in quotas or pricing are required, and the NSF shall establish said quotas and prices as required.

The initial account quotas have been derived using FY 2001 communications budget constraints and assume full berthing and 365 days on charter. These assumptions leave approximately 10 - 15 percent budgetary overhead. Users who exceed their email quota by over $10 will have to pay for the excess. Payment for this excess usage will be made in cash or check to the MPC at the end of each cruise. The PI for each grantee will be ultimately responsible for ensuring that they payment is made for each grantee who accumulates a balance due. ECO will be responsible for ensuring payment for each of its own employees. All collections shall adhere to the current USAP standard policy for collection of funds from grantees in the field. All funds collected will be transferred into the operating budget for vessel satellite communications. Adequate records shall be kept for collection.

Standard account

- A per message size filter of 100kB outbound and 75kB inbound will be in effect. This will prevent extremely large messages from being sent to or from the ship except via approved accounts and will prevent a user's quota from unwittingly be consumed by a large inbound "spam" message.
- 100kB will allow for high-resolution images to be sent, while protecting them from using their allotment too quickly. However, these size limits are subject to review and could easily be adjusted as needed.
- For a legitimate and approved request, the limit can be adjusted for a single email transmission, or for the duration of a cruise as necessary and by individual user account.

Privileged Accounts:

- The MPC and Admin accounts will have permission to send and receive oversized messages
- The TEA account and captain (these will be special work accounts, not the Captains' personal accounts) will have permission to send but not receive oversized messages

- Abuse of the oversized email privilege, defined by the use of the privileged account for personal email, will result in removal from the privilege account list and return to the standard size filter
- Special Account Allotments:
  - The TEA account and Outreach account shall have a combined allotment of 250kB/day to cover sending of pictures and text for TEA events and NSF approved Outreach.
  - The MPC account and Admin account shall have a specified allotment of 512kB and 1024kB, respectively, per week to permit necessary email traffic, including but not limited to, Sitreps, News, Weather Data, special science requests and emergency software transfers.
  - An allotment of 512kB/week shall be used to cover business /cruise related email sent to and from RPSC and ECO staff. The RPSC accounts covered by this are: ET, MT, MST, EMT, and TeraScan. The ECO accounts covered by this are: Captain, Engineer, and Bridge.

General Guidelines

- A user's email allotment for a cruise will be based upon the cruise length (plus 4 days for port call time) multiplied by the current daily quota. For example, a 42 day cruise at 25kB/day would produce an allotment of: (42+4) days * 25kB/day = 1150 kB or 1.12 MB. Allotments and usage will be calculated using the compressed file size of each email message sent to or from the user across the HSD connection. The user will be financially responsible for any usage over the per cruise allotment. Initial transfer rate as of 4/01/02 is approximately 360kB/min of compressed data at $10/min, or a transmission cost of 360 KB @ $10.00. The billing is based on actual compressed bytes transmitted, and will be prorated on an average cost per byte. The billing rate and the policy itself are sent to the individual accounts at the beginning of the cruise, stated and explained during the IT orientation at the beginning of the cruise, and posted prominently in multiple locations on the ship. Accounting information is provided daily to each account user, and this information is collated and maintained by the IT staff and an end of cruise report is submitted to the MPC. Payment shall be made to the MPC in either cash or personal check.
- The user's total on and off ship email usage will be calculated each day, and record of it placed in their home directory for review of current usage, remaining allocation, and current user-borne cost.
- Users who have exceeded their allotment by over $10 will receive an invoice at the end-of the cruise, both hardcopy and electronic, showing their usage during the cruise, the amount they owe and instructions to settle the account with the MPC. All accounts must be settled on a per cruise basis, even for users who are remaining aboard for subsequent cruise.
- Users who do not settle their bills will have future email access restricted to 3kB/message. The NSF (Al Sutherland, Pat Smith, and Brian Stone) will be notified of those violators of the policy.
- RPSC contract employees should settle their account when receiving their travel fund.
- ECO shall be held responsible for any outstanding email bills for its employees.
- The Principal Investigator (PI) for each science group shall be responsible for the email usage bill for members of that science group. The PI will be given a running account of the email usage of those grantees for whom they are responsible.
- If a user is receiving excessive (in size or volume) email from a particular address and is unsuccessful in requesting an end to the email from the sender, email from the sender shall be blocked at the server in Denver.

PRD/EE/4

NOTE NUMBER: PRD/2002/19

The Ministry of Foreign Affairs and Trade presents its compliments to Diplomatic Missions and Consular Posts accredited to New Zealand and has the honour to take this opportunity to remind Diplomatic Missions and Consular Posts of details of New Zealand's quarantine border control measures.

All travellers to New Zealand (this includes all Diplomatic staff, Consular staff, Administration and Technical staff, dignitaries and official visitors) must complete a **Quarantine Declaration form prior to their entry into New Zealand**. There is no law against bringing quarantine goods into New Zealand so long as they are declared on the Quarantine form. If travellers are unsure about any imported items they should either declare them on the Declaration form or ask a Quarantine Officer at the point of entry. Declared items will be inspected, treated if necessary, and returned when the pest or disease has been eliminated. Treatment for personal consignments is relatively inexpensive and goods are usually returned within a few days. **However, prohibited items such as some fruits, vegetables, meats, animal products, seeds and plants are not allowed into New Zealand and will be destroyed.**

In addition to travellers completing Declaration forms all incoming personal baggage must be x-rayed. If the X-ray determines baggage that contains plant or animal materials then the baggage will be subject to a further physical search. There are no exceptions to these rules.

It should be noted that from 1 July 2001 **instant fines** were introduced to anyone, **including the members of the Diplomatic and Consular Corps**, who enter New Zealand with undeclared quarantine items. The use of instant fines remains in force.

The Ministry reminds members of the Corps that under Articles 36 and 50 of the respective Conventions that the personal luggage of the members of the Corps is exempt from inspection unless there are serious grounds for presuming that it contains prohibited articles. Identification of organic products or other quarantine related items by means of X-ray machines or detected by the detector dogs used at points of arrival will constitute serious grounds to search the baggage.

The Ministry requests that Missions and Posts **bring this Note to the attention of all staff and family members** and asks that **all prospective visitors to New Zealand are made aware of New Zealand's strict quarantine regulations and the consequences of non compliance**. Doing so will avoid unnecessary embarrassment to the visitor, the mission and the New Zealand Government.

A **summary information leaflet** is attached and the Ministry asks that this be **passed to all staff and prospective visitors coming to New Zealand**. This information sheet could be emailed to visitors prior to their departure for New Zealand.

Further information including translations in a number of languages of the New Zealand Passenger Arrival Card is available on the Ministry of Agriculture and Forestry Quarantine Service website on the internet (**http:/www.quarantine.govt.nz**).

The Ministry of Foreign Affairs and Trade takes this opportunity to renew to the Diplomatic Missions and Consular Posts accredited to New Zealand the assurances of its highest consideration.

Ministry of Foreign Affairs and Trade

WELLINGTON

24 June 2002

NEW ZEALAND QUARANTINE REGULATIONS

Because of New Zealand's geographical isolation, a unique range of plants and wildlife developed here free from many of the pests and diseases which plague other countries. The Ministry of Agriculture and Forestry (MAF) Quarantine Service seeks help from the public to keep New Zealand the "Cleanest and Greenest" place on earth.

The Ministry of Agriculture and Forestry (MAF) Quarantine Service is New Zealands first line of defence against invasion by pests and diseases which could devastate the agriculture, horticultural and forestry sectors in New Zealand.

All travellers to New Zealand (this includes all Diplomatic staff, Consular staff, Administration and Technical staff, dignitaries and official visitors) must complete a **Quarantine Declaration form prior to their entry into New Zealand**. There is no law against bringing quarantine goods into New Zealand so long as they are declared on the Quarantine Decollation form. If travellers are unsure about any imported items they should either declare them on the Declaration form or ask a Quarantine Officer at the point of entry. Declared items will be inspected, treated if necessary, and returned when the pest or disease has been eliminated. Treatment for personal consignments is relatively inexpensive and goods are usually returned within a few days. However, **prohibited items such as some fruits, vegetables, meats, animal products, seeds and plants are not allowed into New Zealand and will be destroyed**.

In addition to travellers completing Declaration forms **all incoming personal baggage must be x-rayed**. If the X-ray determines baggage that contains plant or animal materials then the baggage will be subject to a further physical search. There are no exceptions to these rules. It is a requirement that travellers must remain with their own personal baggage when it is X-rayed and for any subsequent physical searches that are required.

Instant fines are in place for anyone who enters New Zealand with undeclared quarantine items.

Some goods that the Quarantine Service has an interest in include:

Motor Vehicles, Gardening Equipment, Lawn Mowers and Catchers, Foodstuffs, Medicine, Cane furniture, Bicycles, Golf clubs and buggies, Sporting shoes and equipment, Vacuum cleaners (bag contents), Ornaments and curios containing skin or feathers

Further information including translations in a number of languages of the New Zealand Passenger Arrival Card is available on the Ministry of Agriculture and Forestry Quarantine Service website on the internet (**http:/www.quarantine.govt.nz**).

PROCUREMENT REPORT, OO-215, NBP 03-2

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Key	PROJ NO	DESC.....	QTY	UNIT	....P.O. #	TCN.....	ROS	VEND NAME.....	..REC DATE	DEL DATE..
RC89528-01	215	SEA WATER - P-SERIES IAPSO STANDARD, VIALS OR TAB TOP, 200-ML, 10-EA/PKG	10	PKG	RC89528-01	22150010	2313	OCEAN SCIENTIFIC INTERNATION	10/16/02	10/28/02
RC91515-01	215	PURIFIER, GAS - FOR NITROGEN, WITH 1/8" COMPRESSION FITTINGS	2	EA	RC91515-01	22156037 22156038	3056	BIG DOG SCIENTIFIC	11/15/02	11/22/02
RM89509-01	215	BATTERIES, ALKALINE D CELLS, 35 EA/PKG, 10 PKG	10	PKG	RM89509-01			MATHEWS ASSOCIATES INC		
RM89517-01	215	SULFURIC ACID - 10N, 1-L GLASS BOTTLE	4	BOT	RM89517-01	22152001	2313	BIG DOG SCIENTIFIC	9/6/02	9/11/02
RM89526-01	215	MANGANESE CHLORIDE TETRAHYDRATE CRYSTALLINE - 100G-EA, 6-EA/CAS	1	CAS	RM89526-01		3056	BIG DOG SCIENTIFIC	9/4/02	9/11/02
RM89526-01	215	BOTTLE, POLYETHYLENE - NALGENE AMBER, RECTANGULAR, 500-ML, 12-EA/PKG	3	PKG	RM89526-01		3056	BIG DOG SCIENTIFIC	9/12/02	9/11/02
RM89526-01	215	SODIUM HYDROXIDE PELLETS - 3-KG/BOT	1	BOT	RM89526-01		3056	BIG DOG SCIENTIFIC	9/3/02	9/11/02
RM89526-01	215	SODIUM IODIDE CRYSTALLINE - 500-G, 6-EA/CAS	1	CAS	RM89526-01		3056	BIG DOG SCIENTIFIC	9/4/02	9/11/02
RM89530-01	215	HEXANE - OPTIMA GRADE, 1-L/EA, AMBER GLASS BOTTLE	1	EA	RM89530-01		3056	BIG DOG SCIENTIFIC	9/4/02	9/11/02
RM89530-01	215	METHANOL - CERTIFIED ACS GRADE, 1-L/EA, AMBER GLASS BOTTLE	1	EA	RM89530-01		3056	BIG DOG SCIENTIFIC	9/4/02	9/11/02
RM89530-01	215	MAGNESIUM PERCHLORATE ANHYDROUS - 500-G/EA, AMBER GLASS BOTTLE	2	EA	RM89530-01		3056	BIG DOG SCIENTIFIC	9/6/02	9/11/02
RM89530-01	215	ETHYL ALCOHOL - DENATURED, 4-L/EA AMBER GLASS BOTTLE	1	EA	RM89530-01		3056	BIG DOG SCIENTIFIC	9/4/02	9/11/02
RM90505-01	215	EXPENDABLE BATHYTHERMOGRAPH - XBT, T-7, 12-EA/CAS	324	EA	RM90505-01	22150011	2345	SIPPICAN, INC.	10/17/02	11/8/02
RM90505-01	215	EXPENDABLE BATHYTHERMOGRAPH - XBT, T-5, 12-EA/CAS	60	EA	RM90505-01	22150012	2345	SIPPICAN, INC.	10/18/02	11/8/02