This manual requires significant updating. However, much of the information it contains is still of value. If you have any questions about the content or want current information on any subject, please contact D. Morse, CCG Operations, (902)-426-5114

DEPARTMENT OF FISHERIES
AND OCEANS
SCOTIA-FUNDY REGION

MANUAL FOR SENIOR SCIENTISTS

REVISED MARCH, 1995

DRAFT

SUBJECT TO REVISION

MANUAL FOR SENIOR SCIENTISTS

Revised March, 1995

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MANUAL FOR SENIOR SCIENTISTS

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1. INTRODUCTION

This manual is intended to provide a framework for planning, implementing, and reporting on scientific research and hydrographic voyages carried out on ships operated by the Scotia-Fundy Region of the Department of Fisheries and Oceans (DFO).

The voyage planning cycle attempts to look three to five years ahead at the anticipated interlocking demand for shiptime needed to carry out research and survey voyages. For typical research operations commencing in April each year, formal planning begins in the previous September with a call for shiptime requests. These are submitted on Form "A", Atlantic Science Vessel Request. If a request involves research in foreign waters, Form 1, Notification of Proposed Research Voyage in Foreign Waters must be submitted at the same time, but not less than seven months prior to the anticipated voyage, for diplomatic clearance purposes.

All shiptime requests must be accompanied by an Initial Environmental Assessment Form to ensure that notice is given of work that may need formal approval and require mitigation of environmental impacts. Shiptime is normally confirmed (or denied) in January or February. Soon thereafter, Form "B", the Voyage Plan, must be submitted. If the voyage is for fisheries research, Form "B" must be accompanied by a Fisheries Research Notice to ensure that permits for experimental fishing in open and closed areas are obtained. Geophysical voyages involving high-power seismics or explosives, and voyages on which bottom coring and dredging will be performed or where national historic areas (e.g., certain beaches) are involved, may require clearance from various agencies and government departments as outlined in Appendix A.

Voyage planning requires a number of formal and informal interactions and coordination meetings that continue through to the end of the voyage, at which point Form "C", Summary and Scientific Voyage Report, must be submitted.

The requirements for organizing and carrying out research and survey voyages are treated in detail in the following sections and appendices. Related topics are also addressed, for example, shipboard customs, waivers for non-governmental participants, medical fitness of participants, Work Orders, and the coordination of the work necessary to prepare the ships for a sequence of voyages that typically spans an eight to ten month period each year.

Appendix K presents a Senior Scientist's Checklist which is intended as a planning guide.

Copies of this manual and of ship's Standing Orders are available from Marine Services and on each Scotia-Fundy Science and Hydrographic Ship.

2. GENERAL

At the Bedford Institute of Oceanography (BIO), Scotia Fundy Region, vessel management requires that research and survey activities using Departmental vessels be cooperative ventures involving interlocking responsibilities on the part of Masters, Senior Scientists and Hydrographers-in-Charge. The ship's Master is responsible for the safety and efficient navigation of the ship and its complement of crew and scientific staff. The Master is also responsible for the maintenance of discipline and for the well-being of all on board in terms of pertinent regulations pursuant to the Canada Shipping Act.

Except for emergency situations, the Senior Scientist or Hydrographer-in-charge is directly responsible for the scientific staff. The Master and Senior Scientist/Hydrographer work as a team. Generally, the ship's electronic technician reports directly to the Master with the exception of those instances in which an electronic technician has been requested specifically by the Senior Scientist/Hydrographer for a vessel that does not normally carry one (e.g., Parizeau and Fisheries Research Vessels). The Senior Scientist/Hydrographer must ensure that the scientific staff is aware of the ship's procedures and customs regarding safety, access to bridge and engine room, meal times, smoking policy, etc.

As a general rule, scientists and hydrographers have the same privileges as the ship's officers. Although the lounge, dining salon and pantry are for the use of both officers and staff, the staff should try to avoid infringing on existing ship's customs. Guidelines on the use of these facilities are posted on all BIO vessels and are brought to the attention of the scientific staff at the beginning of each voyage. Additional guidelines are compiled in a document entitled "Manual for Seagoing Staff", and in the "Standing Orders" for each vessel, copies of which are available from Marine Services and on board the vessels. Senior Scientists are responsible for ensuring that scientific Staff have access to, and for encouraging them to read, these documents.

On some of DFO's science vessels, the officers' mess and crew's mess sell alcoholic beverages when operations take the vessels outside the 12-mile limit. Officers and Senior Scientists/Hydrographers are cautioned that because all onboard are assigned fire and lifeboat duties which come into effect in case of emergency, those in authority must ensure that all personnel exercise good judgement and moderation with regard to alcohol consumption. The safety of all onboard will, in an emergency, depend on the sobriety of staff and crew. In the foreseeable future, the laws and regulations pertaining to the operation of government ships will likely be changed to make the shipboard consumption of alcohol illegal when the ship is in operation.

3. PRE- VOYAGE

3.1 Voyage Planning

After having completed Form "A", Atlantic Science Vessel Request (Appendix B) and receiving confirmation that shiptime has been allocated, the Senior Scientist or Programme Head must, at an early stage, plan the work to be carried out on the voyage. About three months before the voyage commencement, the Senior Scientist/Hydrographer must submit Form "B", the Voyage Plan (Appendix B). Many Senior Scientists have found that the exercise of completing Form "B" has identified previously overlooked items at a date when corrective action was still possible prior to the voyage; e.g., winches which were not available, conflicts for deck space, etc. Because weather conditions and equipment failures are unpredictable, Senior Scientists are expected to have contingency plans in place so that the maximum possible output is obtained from each day allocated. With luck, the completion of additional/optional experiments might be possible. The ship should be utilized for program work to the limit imposed by the current overtime policies; these policies should be discussed with Marine Services during the pre-voyage planning meeting(s). Although the planned program work should be commensurate with the allocated ship time, in instances where all planned and optional work is completed in less than the scheduled time, an early return to port is normally recommended.

3.2 Planning Meetings

At least one formal pre-voyage meeting, organized by the Senior Scientist/Hydrographer must be held with the Assistant Marine Superintendent, Operations, plus other appropriate staff, to discuss the proposed program. This meeting should be held no later than one month before sailing and should identify:

(a) the nature of the work and equipment that is to be used;
(b) concerns such as ports of call, the proposed ship's track and stations, navigation equipment and support expected from the bridge, hazards, ice, etc.;
(c) requirements for winches, cranes, portable labs, storage, etc., some of which may have to be installed or removed;
(d) loading and storage problems; e.g., noisy equipment or explosives;
(e) the level of support from the deck crew expected for the scientific program on a 24-hour basis, and the amount of overtime anticipated for the ship's personnel;
(f) any special requirements of staff; for example, medical or dietary requirements;
(g) any related logistics concerning previous or following voyages.

Programs requiring high-quality navigation, or modification to shipboard computers, sounders, transducers, uninterruptible power supplies, etc., should involve Engineering and Technical Services (Marine Electronics) and/or the Navigation and Data Base Specialist (Hydrography) at the pre-voyage meeting. Work arising from this meeting should be put on a Work Order form (see Appendix F), or otherwise in writing, and forwarded to the Assistant Marine Superintendent, Operations (BIO) who will forward the work request to the appropriate Division. Senior Scientists/Hydrographers should designate one person as a coordinator for the purpose of preparing the ship for the scientific mission; one role of the coordinator would be to rationalize conflicting requests for equipment and for equipment placement on the ship.

3.3 Meeting with Ship's Officers

The Senior Scientist must arrange an informal meeting with the Master and Chief Officer, at an appropriate time when the ship is in port, and well before the start of the voyage. At this meeting, the Master is be advised of the scientific program to be carried out, and general arrangements for loading scientific equipment are to be discussed with the Chief Officer.

3.4 Loans of Scientific Equipment

It often occurs that the Senior Scientist wishes to use a piece of equipment, such as shipboard computer, corer, CTD, etc., that he/she does not have, and is uncertain as to where the item might be available for loan. He/she may contact the Assistant Marine Superintendent, Operations, regarding possible sources. However, it should be noted that managers of particular scientific programs are the custodians of electro-mechanical cables and specialized winches, and they must give the final approval for its use by others. They may also levy an O&M charge for the use of some of this equipment, and may require damage and loss to be covered by the user.

The sharing of equipment, particularly on successive, distant voyages without calls into home port, has merit; but it must be discussed and agreed prior to departure of the ship. Any requirement for equipment from/through Marine Services should be submitted on a Work Order (Appendix F) and attached to Form "B".

3.5 Co-ordination with Other Users

Between-voyage turn-around times at BIO or elsewhere can be short. Often, gear such as winches, cranes, wire, etc., can be installed on a ship so as to serve several subsequent voyages as well. Well before the voyage dates, the Senior Scientist/Hydrographer should meet with the Senior Scientists for the preceding or following voyages to try to minimize the need to rearrange laboratories and working areas during in-port periods. This is especially important when a changeover is scheduled for a port other than BIO. Co-ordination meetings should take place before the voyage planning meeting described in 3.1.

3.6 Permissions: Foreign Waters, Seismics, Environmental Assessment

Permission must be obtained for operations in foreign waters and for entry into foreign ports (e.g., Greenland) by submitting Form 1 (Appendix J). It is the responsibility of the Assistant Marine Superintendent, Operations (Marine Services) to obtain the necessary permission through the International Directorate of DFO. Because the request must go from BIO to a) DFO Headquarters, Ottawa, b) to an External Affairs officer, c) to the relevant country, and then back along the same route, a minimum of **seven** months is normally required for the process. By agreement, all countries have made six months the minimum notification period and may refuse to consider requests with less lead time. Certain countries may accept less advance notice than stipulated in the Appendix, however additional time is required for the movement of paperwork within Canada. Furthermore, Ireland and Russia require a different form to be completed.

Geophysical surveys in Canadian waters involving seismics require a variety of approvals which are detailed in Appendix A. While it is Marine Services responsibility to notify the various agencies, the Senior Scientist/Hydrographer must inform Marine Services that the program requires these approvals and must ensure that the required notifications have been made before the ship sails. A minimum of 90 days is required for some of these approvals.

Senior Scientists/Hydrographers carrying out anchor stations, mooring operations, dredging, coring, or dragging must determine that this operation will not endanger submarine cables. Commercial cables lying in Canadian waters are shown on hydrographic charts, especially those designed for the fishery. If in doubt, the Regional Hydrographer's office should be consulted. Maritime Command (Appendix A) should also be informed of extensive dredging/dragging operations to avoid interference with classified military cables.

For planned operations near major ship traffic lanes, lengthy anchor stations, and for operations involving surface moorings, large surface drifters or sub-surface moorings in fishing areas, the Senior Scientist/Hydrographer must arrange for the issue of the appropriate Notices to Mariners via the Assistant Marine Superintendent, Operations in advance and via the Master for situations that arise during the voyage. All equipment deployed during the voyage must be covered by a Notice to Mariners. This notice is arranged by the Master at the time of placement. In certain inshore areas, permission to moor or anchor must be obtained from the appropriate harbour authority.

3.7 Sailing Instructions

Form "B" details the general area of operation, types of activities, ports of call, dates, and those routine observations that will be collected by the ship's personnel. It is the responsibility of the Senior Scientist/Hydrographer to see that Marine Services has been given the information **three** months prior to the start of the voyage, to allow adequate planning and preparation for the scientific program. It should be noted that Form "B" is not the equivalent or a substitute for the scientific voyage programs required by most laboratories. The scientific voyage program gives a description of scientific operations. Although not mandatory, it is often helpful to Marine Services personnel if a copy of the scientific voyage program is appended to Form "B".

Sailing instructions are issued by Marine Services to the ship's Master approximately 10 days or one voyage before sailing time. It is the responsibility of the Senior Scientist to provide Marine Services with an updated Form "B" (Appendix B) which includes lists showing names and affiliations of all voyage participants, and names and addresses of next-of-kin. The Senior Scientist must also ensure that all non-federal-government employees have signed a "Waiver and Release" form (Appendix G). Both these forms are available from Marine Services and onboard each ship. Declaration of Health forms (see Section 3.8) and Waiver and Release Forms (Appendix G) are to be attached to Voyage Plan Form "B", if possible, but must be given to the Master prior to sailing.

3.8 Medical Fitness

About one month prior to sailing, the Senior Scientists/Hydrographer must ensure that all of the voyage participants have declared appropriate medical fitness using the "Supernumerary Ship's Personnel Declaration of Health" form (Appendix K). Participants having medical conditions that are stable or controlled by medication are encouraged to make this information known to the Senior Scientist/Hydrographer and the Master so as to ensure that in case of emergency, others are able to assist knowledgeably. The Senior Scientist/Hydrographer and supervisors who have concerns about the medical fitness of their employees scheduled for sea duty are expected to request a medical examination via the appropriate channels (e.g., for Canadian government employees: Health and Welfare Canada).

Senior Scientists/Hydrographers are advised that consideration should be given to employing a Medical

Officer on the voyage if the work area precludes medical evacuation by air in less than four to six hours flying time from a medical evacuation point. Marine Services will provide advice about medical evacuation locations. The scientific program must pay the cost of employing the Medical Officer. If the Senior Scientist/Hydrographer wishes to employ a Medical Officer, he should so indicate on the shiptime request (Form "A") so that when the shiptime is allocated, the Medical Officer can be assigned and cost recovery actions can commence. Because it can take up to six months to engage the services of a Medical Officer, as much advance notice as possible should be given.

3.9 Fisheries Research Notice

A Fisheries Research Notice (Appendix H) is required to notify Fisheries and Habitat Management Branch (FHMB) about science vessels movements and possible fishing in closed areas by research vessels. This information is taken into account by surveillance groups when plotting positions of fishing vessels, and also when responding to damaged fishing gear complaints, etc.

Approval is given by the appropriate Division Chief, then the Branch Director. After receiving approval and permit numbers from the FHMB Branch Director, Marine Services requires that a copy be attached to Voyage Plan (Form "B"), and subsequently to the sailing orders of the voyage concerned.

3.10 Loading and Pre-Voyage Co-ordination of Staff

It is strongly recommended that a pre-voyage meeting of the scientific and technical staff be held. This meeting should discuss, in general terms, the scientific program and objectives, the working organization and responsibilities at sea, individuals responsible for loading, space allocation in the laboratories and working areas, and the allocation of cabins. Cabin allocation should adhere to the policy outlined in Appendix C, and a cabin list should be given to the Senior Steward and/or Master several days before sailing.

Loading and unloading should be planned carefully and coordinated with the vessel's Chief Officer, the Assistant Marine Superintendent, Operations, and the Supervisor, Shore Support. The weights of all heavy equipment to be loaded and/or deployed on the voyage should be supplied to the Chief Officer and reported on Form "B". Each item, in excess of 700 kg should be clearly marked with its weight. One individual (from the scientific party) must be placed in charge of loading and identified to all scientific staff and the Assistant Marine Superintendent, Operations (who will inform the Supervisor, Shore Support). The individual in charge of loading must be available at the loading port during the entire loading period. Ship's staff and other support staff who assist in the loading are notified and instructed not to accept requests for work from anyone else.

It should also be borne in mind that ship's personnel must also load stores during this period and are not generally available for assisting with loading large amounts of gear on the last workday prior to sailing. In the case of a one-day turn around, the Senior Scientist/Hydrographer must establish, in advance, a clear agreement with Marine Services concerning loading of the vessel. The ship may also require one day for refuelling during which no welding or cutting may be done. During pre-voyage meetings, loading should also be coordinated with Senior Scientists/Hydrographers of other voyages in order to avoid confusion about what is being unloaded, what is staying onboard, and what is to be loaded. For voyages with only one or two days available in port for preparation, close coordination is mandatory.

3.11 Sailing Day

Prior to sailing, the Senior Scientist/Hydrographer should ensure that:

(1) all winches, cranes, computers, and special navigational equipment required for the program are installed and operational, or at least capable of being made operational;
(2) all scientific gear and supplies on board are properly secured; the securing of gear is a shared responsibility with the Chief Officer, the bosun, and technical staff identified by the Chief Scientist;
(3) staff cabins are in an acceptable state; report any problems to the Chief Officer;
(4) all scientific staff are on board;
(5) all personnel documentation has been forwarded to the Master;
(6) a list of all hazardous materials [pursuant to the Workplace Hazardous Material Information System (WHMIS) Regulations] loaded for use on the voyage has been given to the Chief Officer. If you are unsure of the definition of "Hazardous Materials", check with the Regional Safety Officer. All products or containers, regardless of size, are to be fully labelled according to WHMIS Regulations and all Material Safety Data Sheet (MSDS) are to be handed to the Chief Officer prior to sailing. Containers holding several hazardous materials are to have a list of same attached or handed to the Chief Officer (each item on the list to be labelled according to WHMIS regulations);
(7) chemical spill kits are on board capable of cleaning up as large a spill as could occur when handling the chemicals and hazardous materials that have been brought on board;
(8) bridge officers should have been made aware of your requirements concerning the keeping of a scientific bridge log, meteorological observations, etc.

4. AT SEA

4.1 Co-ordination with Master, Chief Officer and Bridge

The Master must be kept informed by the Senior Scientist/Hydrographer of the work plan for each shift; this is particularly true for work continuing through the night and for work in shipping lanes, nearshore or in ice. Each day the Senior Scientist/Hydrographer must provide the Master with an outline of the planned program for that night and for the following day. In case of inclement weather or hazardous conditions, the Master makes the final choice on whether a program can be carried out safely as planned.

The ship's deck crew are responsible for running all of the ship's winches, cranes and A-frames, and are also responsible for instrument mooring work or for launching large packages over the side. The specific requirements of the scientific program in the case of unique operations should be described to the Chief Officer well in advance (i.e., during the pre-voyage meetings) so that the appropriate watch changes can be arranged. Pre-arrange a schedule for this kind of work so as to avoid surprises and deal fairly with people's needs of meals, coffee-breaks and sleep. Scientists contemplating operations requiring a large deck crew for assistance are reminded that for ships not using the `lay day' system, the ship's overtime budget is limited.

At sea, it cannot be emphasized too strongly that the Officer of the watch must be kept informed of what you are doing. Before any instrument is put over the side, the bridge must be contacted for approval. The bridge must also be informed when instruments are recovered and brought in board, or if various transducer rams are to be extended or retracted. It is the responsibility of the bridge to raise and lower transducer rams.

In the handling of long lengths of electromechanical cable for instruments such as a CTD, much care must be taken during the initial loading of the cable to ensure smooth spooling. These cables are expensive and have long delivery times; the scientific watches supervising such operations should be cautioned on the critical importance of smooth spooling. The initial spooling of the wire will be arranged and supervised by a specified program individual from each laboratory or division who will make arrangements with Shore Support staff to carry out the loading under his/her direction. This should be arranged well in advance of the voyage. Appendix D outlines some of the particulars regarding the care and handling of electromechanical cables.

4.2 Extension of Voyage

Occasionally a Senior scientist may ask for a voyage to be extended (e.g., because unusually bad weather has excessively curtailed the work). Before making a request for extension, the Senior Scientist must remember that the ships have been programmed as efficiently as possible so that an extension of one voyage will usually result in the shortening of another. If a request is nevertheless made to extend a voyage, it must be made at least 72 hours before the voyage is scheduled to end.

4.3 Navigation

The Officer of the watch is trained to use GPS satellite navigation, hyperbolic LORAN C, celestial fixing, bearing lines, and radar fixing in order to safely navigate the vessel in all circumstances. The Officer of the watch will navigate at a level consistent with the safe operation of the ship (roughly ± 0.25 n.m. in coastal waters). If the scientist/hydrographer requires extremely precise and accurate navigation such as can be obtained using Differential GPS (antenna can be positioned to ± 5 m or better), a skilled operator may have to be supplied by the scientific party to operate and supervise such a system. These requirements should be discussed with the Master and with navigation and positioning specialists in Hydrography and Engineering and Technical Services at the time of the pre-voyage meeting. Special navigation needs must be identified in Form "A" (Appendix B). Since the ship's officers may also use these special systems for positioning, the Senior Scientist should, in consultation with the Master, determine whether they will be maintained over the entire voyage, or only during infrequent intervals; various ways of logging navigation data for subsequent post processing are available.

4.4 Routine Observations and Investigations Involving Ship's Personnel

(1) Standard surface meteorological observations are made and logged every 6 hours by the Officer of the watch. These are communicated by radio to the World Weather Watch network.

(2) GEBCO (General Bathymetric Charts of the Oceans). On request, the Senior Scientist/Hydrographer is responsible for supplying, on return to BIO, copies of bathymetric data (deeper than 200 metres) that were collected for the Regional Hydrographer. Ship's personnel can sometimes be made available for sounder watchkeeping on voyages that do not have a hydrographic survey component.

(3) If requested by the Senior Scientist/Hydrographer, Officers of the watch will keep a special bridge log detailing the scientific program (times, positions, stations, etc.). The Senior Scientist/Hydrographer must ensure that an adequate supply of such logs are available for their voyage. Scientific Bridge Logs are available through Marine Services.

(4) Each week, a report on the scientific work of the ship must be sent either by facsimile (INMARSAT) or via Coast Guard Radio to Marine Services at BIO. It will then be distributed to laboratory Directors, etc. Reports should be sent each Sunday to arrive at BIO by Monday morning.

4.5 Supplies and Maintenance

Generally speaking, the ship's technician, if onboard, is responsible for maintaining the ship's common-use electronic equipment including computers, navigation and echo sounding systems. The scientific party is expected to maintain its own electronic equipment and bring an adequate supply of spares, manuals and test equipment to do so.

The ship carries office supplies, bosun supplies, engine room supplies, etc., only for its own use. Again, the scientific party is expected to be self-sufficient in office and computer supplies, hardware, cordage, etc. The ship will normally have a hydrographic winch equipped with an appropriate length of hydrographic wire, a winch capable of handling multi-conductor cable (cable and slip rings to be supplied by scientific party), some general purpose blocks, grapnels, hardware, etc. Note that slip-ring winches are generally not available on fisheries research vessels; special arrangements must be made for these installations. Before going to sea, the Senior Scientist/Hydrographer should discuss requirements with the Chief Officer or the bosun. If you think you are going to need a particular kind of equipment, make sure that either you or the ship has it and make sure it works. Contact the Assistant Marine Superintendent, Operations, to verify the condition of

winches that have been specified for your voyage.

A ship's technician from Engineering and Technical Services (Marine Electronics) is carried routinely by the major research vessels (Hudson and Matthew) and may be requested for other vessels such as Parizeau. The technician's primary duty is to service the ship's electronic equipment, the common user program equipment, and the hydrographic equipment; the technician reports to the Master. If required to service equipment outside normal working hours, the technician should be called-out through the bridge. The scientific party should avoid requesting unnecessary callouts; on the other hand, they should never try to service equipment, such as shipboard computers, themselves. Routine maintenance times for equipment such as the ship's computer should be arranged between the Senior Scientist/Hydrographer and the technician.

4.6 Living Space

All members of the scientific staff should treat the living space on each ship as if they were a visitor in someone else's home. Rules and customs vary from vessel to vessel and from time to time, but there are some subjects that have caused friction in the past. Recreation areas such as the lounge should not be used for scientific meetings except after prior discussion with the Master and the Mess Committee. Care should be taken not to wear soiled work clothes in clean areas (e.g., the dining room, officers' lounge, library, cabins, etc.). Mess rules should be read; these may vary from one ship to another. Excessive noise should be avoided in the lounge and cabins late at night.

Cabins should be kept neat and the stewards will require periodic access to clean them. Scientific equipment should not be assembled or repaired in the cabins. Personal gear such as radios should be secured in the cabins. However, setting screws or nails in the bulkheads or cabin fixtures is not permitted.

Meal hours and dress regulations are posted on each vessel and should be followed. Staff should come to meals early enough to be able to vacate the dining room by the end of the meal hours. Staff should sit only in assigned places or as directed by the steward. If you must work through a meal, arrangements for food to be put aside can be made in advance with the Senior Steward or Head, Catering Dept. You should inform the steward if you are going to skip a meal, otherwise galley staff may expect you and wait for your arrival.

Further details can be found in the "Manual for Seagoing Staff", copies of which are available on each vessel.

4.7 Behaviour in Foreign Ports

It is essential that local regulations are adhered to, including custom regulations concerning the landing of goods and/or personal effects. An individual breaking custom regulations is liable to prosecution in a foreign country; the Master of the ship may also be charged and the vessel prevented from departing. Failure to comply with local customs may jeopardize future use of a port by DFO vessels with serious consequences to future programs. The Senior Scientists/Hydrographers should make their staff aware of the importance of complying with local regulations. Persons leaving or joining the ship are responsible for making their own arrangements. At foreign ports of call, staff may go ashore for recreation provided shore leave has been granted by the Master.

4.8 Post-voyage Meeting Onboard

At the conclusion of the voyage but before the arrival of the ship alongside, the Senior Scientist/Hydrographer must meet with the Master and Chief Officer to discuss the accomplishments realized and the problems encountered — both those that were resolved and those that are still outstanding. This meeting will provide an opportunity for the Senior Scientist/Hydrographer to discuss issues that will be tabled at the Debriefing Meeting noted below in Sec. 5.2. Outstanding problems should be resolved immediately

the ship arrives in port in order to ensure that the subsequent voyages will not be adversely affected.

5. ON RETURN

5.1 Unloading

If the ship has been in international waters, Canada Customs must clear the ship upon docking. The scientific party should remove its belongings and equipment as quickly as possible thereafter. If possible, the necessary equipment such as cranes, forklifts, trucks, and welding services, etc. should be pre-arranged with the Assistant Marine Superintendent, Operations, via a Work Order attached to Form "B". If certain details of unloading are unclear at the pre-voyage stage, then the Work Orders should be submitted at the earliest opportunity when a firm ETA at BIO or other port is known. Arrangements can be confirmed via radio telephone or INMARSAT. Unloading must be coordinated with the Chief Officer and responsible personnel on shore. Unloading should also be coordinated with the Senior Scientist or Hydrographer of the next voyage in order to avoid unnecessary conflicts and rearrangement of gear, particularly when the ship is scheduled to depart 24 to 48 hours after arriving.

5.2 Voyage Summary, Debriefing Meeting

When the ship returns to BIO, a voyage debriefing meeting will be held between ships officers, Marine Service personnel and the Senior Scientist/Hydrographer (see Appendix B). Experience has shown that this is by far the most effective method of introducing operational or equipment innovations which improve future voyages. These meetings are of benefit to both scientists and ship's staff.

It frequently happens that a voyage terminates somewhere other than BIO. In such cases, voyage debriefing meetings cannot take place in the normal way. Instead, Marine services will arrange for a meeting at the earliest possible time — usually arranging a meeting covering two or more voyages simultaneously. In such cases, Marine Services staff will advise the Senior Scientist of the meeting. However, if the voyage terminates at BIO, the voyage debriefing meeting will be held there, and the time and location will be announced prior to the vessel's arrival.

In cases where the Senior scientist is affiliated with a laboratory which is not located at BIO, attendance at the debriefing meeting is not mandatory — although it is strongly encouraged. Alternatively, the Senior Scientist can appoint an associate or colleague at BIO to attend in his place in order to elaborate on the problems that were described in Form "C".

Regardless of whether or not the Senior Scientist attends the meeting, it is mandatory for him/her to submit Form "C" to Marine Services as soon as possible after termination of the voyage. This applies equally to all Senior Scientists, both BIO and non-BIO affiliated.

The voyage documentation in Form "C" provides an abbreviated, historical record of the voyage and, along with the associated ship's track chart (hand-drawn acceptable), gives a thumbnail description of the actual achievements of the voyage. Accordingly, Senior Scientists are asked to be as accurate as possible when completing the form. Forms "B" & "C" are closely related, presenting a picture of "intentions" and of "achievements". Note that Form "C" is not a proxy or a substitute for the Scientific Report required by Laboratory Directors in their particular format. It is not intended that Form "C" do more than present an overview of achievements of the voyage.

Most Senior Scientists prepare substantial reports, which record the scientific achievements of the voyage in some detail. Marine Services appreciates receiving these and keeps copies along with other voyage documents, but does not demand them.

Forms "B" & "C" will be copied by Marine services, and distributed as follows:

1 copy to Chief, Marine Services
1 copy to Master of ship concerned
1 copy to Senior Scientist/Hydrographer
1 copy to Director, PCSB
1 copy to Director, BSB
1 copy to Director, Hydrography
1 copy to Director, AGC
1 copy to DFO Scotia-Fundy Library at BIO

Senior Scientists are, of course, free to distribute further copies as they wish.

5.3 Form for Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP)

The ROSCOP reports are an important mechanism in support of international oceanographic data exchange agreements. If requested to do so by the DFO agency responsible for ROSCOP forms in the Region, the Senior Scientist/Hydrographer must ensure that the ROSCOP form (Appendix E) is completed for designated voyages. Instructions for filling out the form are shown on the inside cover of the form. The Senior Scientist/Hydrographer will have a better appreciation of the voyage data required by the ROSCOP form if the form is reviewed prior to or during the voyage. Within two weeks of the end of the voyage the completed form is to be delivered or mailed to the Data Shop, Ocean Circulation Division, Science Branch, Department of Fisheries and Oceans, BIO, P.O. Box 1006, Dartmouth, N.S., B3A 3V3. Personnel there will check the form and forward it to the final destination.

APPENDIX A Offshore Explorations (Geophysical Surveys) Advance Notices and Approval

An operator planning a geophysical survey involving seismic must notify the regulator 30 days in advance of the proposed date of commencement (90 days if explosives are being used). Operators planning extensive geophysical surveys may wish to confer with the regulator even further in advance of the planned commencement date.

Operators are required to consult one of the regulatory agencies listed below, depending on the areas where geophysical activities will be carried out.

National Energy Board

Under the National Energy Board Act, the National Energy Board (NEB) is responsible for all oil and gas regulatory decisions in the following areas: the Northwest and Yukon Territories and the offshore areas north of 60° in the Gulf of St. Lawrence, Hudson Bay, and the West Coast offshore areas.

Correspondence should be addressed to:

National Energy Board
Attn: Mr. G. Campbell
Energy Resources Directorate
311 - 6th Avenue S.W., 6th Floor
Calgary, Alberta
T2P 3H2

Telephone: (403) 299-3102
Facsimile: (403) 292-5503

Canada/Nova Scotia Offshore Petroleum Board

Oil and gas operations off the coast of Nova Scotia are governed under the Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act.

Correspondence should be addressed to:

Canada-Nova Scotia Offshore Petroleum Board
Attn: Mr. S. Bigelow
TD Centre, 6th Floor
1791 Barrington Street
Halifax, Nova Scotia
B3J 3K9

Telephone: (902) 422-5588
Facsimile: (902) 422-1799

Canada/Newfoundland Offshore Petroleum Board

Oil and gas operations off the coast of Newfoundland are governed under the Canada-Newfoundland Atlantic Accord Implementation Act.

Correspondence should be addressed to:

Canada-Newfoundland Offshore Petroleum Board
Attn: Mr. N. DeSilva
TD Building, 5th Floor
140 Water Street
St. John's, Newfoundland
A1C 1A9

Telephone: (709) 778-1400
Facsimile: (709) 778-1473

Other Information

The above regulatory agencies can also advise operators on environmental requirements for their planned geophysical activities. In certain instances, they will be referred to Parks Canada, if work is to be carried out on beaches in areas within National Park boundaries.

It should be noted that when a vessel if carrying explosives, special permission will be required for it to enter a number of ports. The Senior Scientist/Hydrographer should ascertain whether all of his proposed ports of call are available to vessels carrying explosives.

Information on current offshore oil and gas regulations may also be obtained form the regulatory agencies listed above.

IN AREAS OTHER THAN NOTED ABOVE

Operations in the Atlantic or Arctic oceans other than noted above are handled by the office of:

Commander
Maritime Command
FMO Halifax
B3K 2X0

Clearance for seismic operations has to be obtained from Maritime Command in order not to interfere with military operations or cause damage to underwater equipment and devices. Maritime Command are also responsible for coring and dredging operations that may damage underwater installations.

The Marine Aids Act requires the information in the event that the location of the program warrants the issuance of a "Canadian Notice to Mariners". These national notices may be published subsequently by related foreign publications. "Local Notices to Shipping", advertising the program, will also be issued as necessary.

Responsibilities

1) Marine Services has the responsibility of providing the above agencies with the necessary information.
2) The Senior Scientist/Hydrographer has the responsibility of providing Marine Services with the required details of the program, such as:
   a) areas of operation
   b) time periods
   c) types of operations (coring, dredging, use of air guns, etc.)
   d) if explosives are involved, the following information is also required:
      i) type of explosives

ii) size of charges
iii) depths of water in areas of operation
iv) detonating depths

Information for various government agencies should be given to the Assistant Maritime Superintendent, Operations, four months prior to the start of the voyage.

APPENDIX B

Documentation System

The current system of documentation required of Senior Scientists/Hydrographers for voyages on DFO ships has been in place for a number of years. The intent of the system is to insure, while satisfying the needs of the Scientific Programs, that ship useage and support costs are minimized and duplication of effort is avoided, so as to achieve the maximum possible benefit from our resources.

In September of each year, the Regional Director, Science, asks users to submit requests for shiptime for the following fiscal year that begins in April. Such requests should preferably use the existing shiptime request Form "A". At the same time, any proposals for major voyages being considered for up to five years in the future should be indicated -- but only as a general request for discussion among the scientific community. Ship Time Request, Form "A", is to be submitted by October 15. The request will be evaluated by the Atlantic Science Vessel Committee consisting of representatives from the DFO Scotia Fundy Region, Newfoundland Region, Gulf Region, and the Quebec Region. In addition, there is a representative from NRCan/AGC and from a university on the committee, as well as an observer from the Natural Science and Engineering Resource Council (NSERC). A proposed ships schedule is normally published by January 31.

A voyage plan (Form "B") is to be drawn up for each voyage by the Senior Scientist/Hydrographer, and submitted to Marine Services at least three months prior to the start of the voyage. If the voyage is to enter foreign waters, the plan must be submitted seven months in advance to allow for clearance via diplomatic channels. The purpose of the plan is to inform all those who have a need to know of the scientific purposes of the voyage, and also of the equipment that will be used to achieve its scientific objectives. Major users of the plan, apart from the scientific party participating in the voyage, will be Marine Services, the ship's Master and officers, and the Laboratory Directors. It is recognized that there may be some changes between the Voyage Plan as submitted and the actual voyage, but it is anticipated that the changes will be a small part of the whole. The plan will be used often as a source of information at pre-planning meetings between scientific and ships' staff.

Shortly before the ship sails, the Master will be given sailing orders by the Assistant Marine Superintendent, Operations. An updated Voyage Plan will be attached to the sailing orders and the Assistant Marine Superintendent, Operations should be informed of any last minute changes in the staff list, etc., by the Senior Scientist before sailing.

When the ship returns to BIO, a voyage debriefing session will be held. The session will normally take place at 10:00 a.m. or 1:30 p.m. (depending on the time of arrival of the ship • one hour minimum allowance for customs clearance, etc.). The first part of the debriefing will concern scientific aspects of the voyage; a voyage summary (Form "C") is to be brought to the meeting by the Senior Scientist. The purpose of the debriefing session is to find out what went well with the voyage, and what could be improved. Experience has shown that discussions involving the ship's Master and Chief Engineer, and the Senior Scientist/Hydrographer is a valuable means of improving relations and operations. The Division Chief and Laboratory Director are welcome to attend the debriefing session.

The Voyage Plan (Form "B") and the Voyage Summary (Form "C") will be distributed by Marine Services to Headquarters, etc., so that a record can be built up of our ships operations. Copies will also be kept by Marine Services and by the DFO Library at BIO.

It should be noted that the requirement for Forms "A", "B" and "C" does not replace the requirement of individual laboratories for scientific voyage reports. A scientific voyage report must be completed in the appropriate laboratory format and a copy forwarded to the Regional Director, Science within 2 weeks of completion of the voyage. In addition to fulfilling individual laboratory requirements, scientific voyage reports are collected at the BIO Library where they serve a number of useful purposes including providing a record of ship utilization for ship replacement justifications, and scientific or public inquiries on scientific operations conducted in the areas of interest.

ATLANTIC SCIENCE VESSEL REQUEST **FORM "A"** p. 1

DATE	REQUESTED BY	UNIVERSITY/DEPT./BRANCH/DIV./REGION	PHONE: ( ) - FAX: ( ) - E-MAIL:

DAYS REQ'D IN WORK AREA *(EXclude TRAVEL TIME)*: ____DAYS; MINIMUM ACCEPTABLE IN WORK AREA: ____DAYS

TRAVEL TIME *TO* WORK AREA: _____DAYS; *FROM* AREA: _____DAYS; NAUTICAL MILES TO STEAM *IN* WORK AREA: _____ NM

TOTAL TIME REQUIRED *(INclude TRAVEL TIME)*: ____ DAYS; MINIMUM ACCEPTABLE: ____ DAYS (TOTAL)

PERIOD REQUESTED: (Dates)
1st CHOICE: FROM _____ TO _____ 2nd CHOICE: FROM _____ TO _____
3rd CHOICE: FROM _____ TO _____ UNSUITABLE: FROM _____ TO _____

SHIP REQUIRED (show preference by indicating 1 (first preference), 2 or 3):

HALIFAX, N.S.	***ST. JOHN'S, NFLD.***	***RIMOUSKI, QUE.***	***MONCTON, N.B.***
_____ HUDSON	_____ TELEOST	_____ FREDERICK G. CREED	_____ OPILIO*
_____ PARIZEAU	_____ WILFRED TEMPLEMAN	_____ CALANUS II*	
_____ MATTHEW	_____ MARINUS*	_____ GREBE*	
_____ ALFRED NEEDLER	_____ SHAMOOK*		
_____ E.E. PRINCE			
_____ NAVICULA*			
_____ J.L. HART*			
_____ OTHER			

** CHARTER _____(TYPE OF VESSEL)

**THIS IS FOR INFORMATION ONLY. Chartering is the administrative and financial responsibility of the Program requesting the charter. Investigators should ensure that their program cannot be conducted on a DFO vessel before chartering.

*Inshore vessels scheduled regionally

A brochure describing each vessel's capabilities and equipment is available from members of the Atlantic Science Vessel Committee.

NUMBER OF SCIENTIFIC AND SURVEY PERSONNEL: MALES____ FEMALES____

TYPE OF WORK *(Include information about anticipated deck operations that may run longer than 8 hours per day):*

AREA(S) OF OPERATIONS:

SCIENTIFIC OR TECHNICAL OBJECTIVES:

WILL A MEDICAL OFFICER BE REQUIRED FOR THIS VOYAGE? (YES/NO) _____

COULD THIS BE A **JOINT VOYAGE** (YES, NO)_____	IF YES, WITH WHOM?

NAVIGATING & POSITIONING SYSTEMS: INDICATE IF SYSTEMS BELOW ARE "E", ESSENTIAL; "D", DESIRABLE; "N", NOT REQUIRED.

_____ GPS-NON-DIFFERENTIAL _____ GPS-DIFFERENTIAL _____OTHER SPECIAL NAVIGATION EQUIPMENT OR

_____ HYPERBOLIC LORAN-C _____ AGCNAV REQUIREMENTS (SPECIFY) _____

Consult local navigation and positioning specialists in Hydrography and Engineering and Technical Services before requesting special navaids.

ECHO SOUNDER AND SONAR EQUIPMENT:

FISHING GEAR: _____ WESTERN _____ ENGEL _____ DIAMOND _____ IYGPT

OTHER (USER SUPPLIED) _____ OTHER (VESSEL SUPPLIED) _____

NO. OF SURVEY **LAUNCHES** REQUIRED:	NO. OF **WORK BOATS** REQUIRED:

SHIP SUPPLIED **WINCH(ES)**:

	TYPE	HORSEPOWER	WIRE TYPE	WIRE SIZE	WIRE LENGTH	LOCATION ON VESSEL
1.						
2.						
3.						

CONTAINER(S):	SIZE	PURPOSE	LOCATION
1.			
2.			
3.			

IS WORK AREA IN WATERS UNDER FOREIGN JURISDICTION (YES, NO)? _____ APPROX. LOCATION:

WILL **EXPLOSIVES** BE USED (YES, NO)? _____ TYPE:

UNIVERSITIES PLEASE NOTE: SCIENTIFIC EQUIPMENT REQUIREMENTS:

Applicants should note that this form is NOT an application for scientific equipment which may be required to conduct this voyage. Do NOT assume that such equipment will be provided. Each government agency (e.g. DFO's Biological Sciences and Physical/Chemical Sciences Branches, or NRCan's Atlantic Geoscience Centre) generally maintains its own sea-going equipment which is requested by internal and external users at the beginning of each scheduled year, through separate forms and procedures maintained by that agency. If in doubt as to procedures for obtaining scientific equipment, contact the regional representative on the Atlantic Science Vessel Committee, the Regional Vessel Operations Officer, or the agency's officer responsible for scheduling sea-going equipment. Indicate below what equipment you will be providing and if you intend to apply to borrow it from a DFO or NRCan agency.

WILL YOU APPLY FOR USE OF SCIENTIFIC **EQUIPMENT** BELONGING TO A DFO OR NRCan/GSC AGENCY (YES, NO)? _____

NAME OF AGENCY: TYPE OF EQUIPMENT:

DESCRIBE **EQUIPMENT** SUPPLIED BY YOU: *(to minimize costly and time-consuming installations and/or relocation of equipment, give as many details as possible, including electrical power requirements, approx. size and weight, use of ship's winches, cranes for installation, type of wire/cable, etc. If necessary, use additional sheet.)*

LOCATION AND AMOUNT OF HOLD AND DECK SPACE REQUIRED FOR EQUIPMENT SUPPLIED BY USER:

Deck layout diagrams are available on request.

BRIEFLY OUTLINE SHIP TIME REQUIREMENTS AND PROGRAM OBJECTIVES IN THE THREE YEARS BEYOND THIS VOYAGE:

	Total days	Vessel	Area	Program description and objectives
Field Year +1:				
Field Year + 2:				
Field Year + 3:				

LIST CURRENT DFO OR NRCan PROJECTS WHICH SUPPORT THIS VOYAGE: *(University or other external applicants should provide project details on a separate page(s), indicating work plan at sea, summary of work to follow in the laboratory, publications likely to result from the , and relevant past publications. Indicate previous vessel time received during the past five years including sea days, areas, senior scientist, and your role. Append any relevant documents such as grant applications, appraisals, etc.)*

APPLICANT'S OBLIGATIONS:

Successful applicants are obliged to provide documentation pertaining to their voyage which conforms to regional requirements. At a minimum, this consists of a pre-voyage scientific operational plan, and a post-voyage scientific voyage report in the regional format. DFO Marine Services Divisions in some regions also require the user to provide pre-voyage (FORM "B") and post-voyage (FORM "C") information pertaining to vessel operations. Each region will provide a complete description of its voyage documentation requirements upon request - contact the regional member on the Atlantic Science Vessel Committee. It is assumed that successful applicants will be able to complete the ship's scientific mission with the resources and expertise at their disposal. If the applicant's ability to conduct a voyage becomes compromised due to funding constraints, the regional member of the vessel committee should be contacted at once. Successful applicants must use their allotted vessel time completely, i.e. by departing and returning on the days scheduled, unless alternate arrangements have been approved in advance.

_____ _____

Applicant's Signature: Line Manager's Signature:
(Government RCM, University Department Head)

Send completed forms in duplicate to the Chairman, Atlantic Science Vessel Committee via the DFO regional member of the Committee, by October 14 of Field Year minus 1.

Chairman and Scotia-Fundy Member, Atlantic Science Vessel Committee: R. Reiniger, Bedford Inst. of Oceanography, Dartmouth, N.S.
Tele: (902) 426-4872 FAX: (902) 426-7827

Other Regional Members:

Newfoundland (DFO): J. Wheeler, Northwest Atlantic Fisheries Centre, St. John's, Newfoundland
Tele: (709) 772-2005 FAX: (709) 772-4105

Gulf (DFO): T. Huribut, Gulf Region Fisheries Centre, Moncton, N.B.
Tele: (506) 851-6216 FAX: (506) 851-2387

Quebec (DFO): S. Labonté, Maurice Lamontagne Institute, Mont Joli, Quebec
Tele: (418) 775-0637 FAX: (418) 775-0679

Atlantic Geoscience Centre (NRCan): K. Manchester, Bedford Institute of Oceanography, Dartmouth, N.S.
Tele: (902) 426-3411 FAX: (902) 426-6186

Universities: B. deYoung, Memorial University, St. John's, Newfoundland
Tele: (709) 737-8839 FAX: (709) 8739

Vessel Operations:

Scotia Fundy Region: A. Adams, Marine Services Division, Bedford Institute of Oceanography, Dartmouth, N.S.

Tele: (902) 426-7294 FAX: (902) 426-1890

INITIAL ENVIRONMENTAL ASSESSMENT FORM

I. Project Identification:

Region: Work Activity:

Division: Project Number:

Section:

Project Title:

Project Leader:

Project Description:

II. Description of Environmental Impacts:
(Provide a brief description for each of the potential positive or negative impacts identified in the Screening Matrix.)

III. Proposed Mitigation:

IV. Residual Impacts:

V. Monitoring Requirements:

VI. Initial Assessment Decision:
(Use the number code given in Appendix which corresponds to the appropriate initial assessment decision.)

_____ _____

Project Leader Regional Director, Science

APPENDIX

NUMBER CODE FOR INITIAL ASSESSMENT DECISION

The numbers listed below are the codes which represent the range of possible decisions of an initial environmental assessment. The coded number corresponding to the particular initial assessment decision for each project/program reviewed is used in Section VI of the Initial Environmental Assessment Form.

1. Automatically exclude proposal from screening as a type of project/program that will not produce any adverse environmental effects.

2. Proceed with project program because there are no significant adverse effects.

3. Proceed with project/program because the potentially adverse impacts may be mitigated with known technology.

4. Assess the proposal in greater detail [Initial Environmental Evaluation (IEE)] because the degree of adversity is unknown, the adversity of effects is unknown or, potential effects have not been investigated.

5. Give the proposal further study (IEE) because the ability to mitigate adverse effects is unknown.

6. Refer the proposal to the Minister of the Environment for a public review because the potential adverse impacts are significant.

7. Refer the proposal to the Minister of the Environment for a public review because public concern about it is such that a review is desirable.

8. Automatically refer the proposal to the Minister of the Environmental for a public review as a type that potentially could produce significant environmental effects.

9. Either modify the proposal and rescreen it or abandon it because the impacts are unacceptable.

10. Production of an Environmental Impact Statement at the request of the Canadian International Development Agency (CIDA) because potential adverse impacts are significant.

SHIP:	VOYAGE NUMBER:

VOYAGE ITINERARY REQUIRED: *(start, stop, port call(s), track chart)*

SENIOR SCIENTIST:

SCIENTIFIC STAFF LIST: *(include affiliation)(Attach Next -of kin List)*

EQUIPMENT TO BE USED:

1. EQUIPMENT SUPPLIED BY MARINE SERVICES *(excluding winches)*:

2. EQUIPMENT SUPPLIED BY BIO

EQUIPMENT TO BE USED *(Continued)*:

3. EQUIPMENT FROM OTHER SOURCES:

4. EXPLOSIVES:

5. WINCH AND WIRE REQUIREMENTS:

SCIENTIFIC OR SURVEY OBJECTIVES:

VOYAGE PROCEDURES AND STATION PATTERN REQUIRED:

VOYAGE SUMMARY AND SCIENTIFIC VOYAGE REPORT **FORM "C" p. 1**

VOYAGE NUMBER:	SHIP:
DATES:	
VOYAGE TITLE *(if any)*:	
SPONSORING AGENCY/GROUP(S): PROJECT NAME/NUMBER:	
STAFF: MASTER: SENIOR SCIENTIST(S): SCIENTIFIC PROJECT LEADER(S):	
AREA(S) OF OPERATION *(Geographical location and coordinates—attach a copy of ship's track)*:	
SUMMARY OF PURPOSE:	
TYPE OF DATA COLLECTED:	

RESEARCH PROJECT ALLOCATION:

CHANGES FROM SCIENTIFIC STAFF LIST SHOWN ON FORM "B":

ITINERARY ACCOMPLISHED *(including actual track chart)*:

SCIENTIFIC OR SURVEY ACCOMPLISHMENTS *(with brief statements explaining any failures to achieve objectives)*:

PROBLEMS ENCOUNTERED - SUGGESTED IMPROVEMENTS, ETC.:

WINCH REPORT: PART OF VOYAGE SUMMARY AND SCIENTIFIC VOYAGE REPORT **FORM "C" p. 3**

WINCH #	PUMP UNIT NUMBER:	#	SHIP

REPAIRS ☐ YES ☐ NO REPAIRS REQUIRED ☐ YES ☐ NO

LOCATION ON SHIP:

SLIP RING SYSTEM ☐ YES ☐ NO ☐

OPEN ☐ CLOSE

DATE	HOURS OF RUNNING TIME	MAINTENANCE ONBOARD SHIP/SHORE	REMARKS

_____	_____
CHIEF ENGINEER/CHIEF OFFICER	SENIOR SCIENTIST

APPENDIX C Allocation of Staff Accommodation on Ships

Allocation of Staff Accommodation on Ships

It is generally recognized that the scientific staff accommodation on both DFO and charter ships varies in quality, the most desirable being a large, quiet, single berth cabin. No collective agreement covering scientific staff requires the provision of single berth accommodation as a contractual right. Electronic Technicians (ELs) should normally be allocated cabin space equivalent to that afforded to ships officers.

In general, it is recommended that cabins be assigned on the basis of the individual's contribution to the voyage objectives irrespective of their job classification within the government. The Senior Scientist/Hydrographer should identify project leaders responsible for various aspects of the particular voyage. Such individuals would normally be working odd hours and require some desk space adjacent to their berths where they can assemble and study data and prepare reports. They may also require privacy to deal with personnel matters involving staff. Therefore, such individuals should be assigned suitable single berth cabins when practicable. Senior project personnel would then be assigned the next most desirable accommodation, with the least desirable accommodation being provided to that person contributing least to the scientific objectives of the voyage.

There are bound to be certain exceptions to this principle. In such cases, the Senior Scientist/Hydrographer will have to exercise judgement which he/she may be called upon to justify later. Examples of such exception are:

1) The assignment of a specific single berth cabin to the senior ship's technician (such as cabin #121 on CSS Hudson);
2) Provision of suitable accommodation to female staff or to someone with special needs such as a physically handicapped staff member.

Senior Scientists/Hydrographers should consult with their counterparts on preceding and subsequent voyages to minimize movement of staff who may be remaining on board for more than one voyage or phase of a voyage. This is particularly true in the case of a second ship's technician who may remain on board for several consecutive voyages.

APPENDIX D General Notes on Winches and Wire

General Notes on Winches and Wire

WINCHES:

1. All general-purpose winches and reeling machines are coordinated by Assistant Marine Superintendent, Operations, Marine Services.
2. All mechanical problems associated with this equipment should be documented and reported to the Assistant Marine Superintendent, Operations immediately, e.g., send a FAX to Marine Services, BIO so that parts can be ordered.
3. The installation and removal of winches in regard to BIO's ships should be coordinated through the Assistant Marine Superintendent, Operations.
4. It is the responsibility of the user to acquire the associated equipment such as slip rings and metering blocks.

WIRE:

1. Standard 3/16" and 3/8" cables are available for shipboard use through the Assistant Marine Superintendent, Operations.
2. All other cables are the responsibility of the users. Some of these cables can be borrowed from other scientific laboratories at BIO; however, there may be charge for their use.
3. The loading and unloading of cables should be coordinated through the Assistant Marine Superintendent, Operations. However, in the case of user-supplied cables, the responsibility of proper handling, spoiling, etc., rests with the user. Each Laboratory or Division has nominated an individual who will arrange for the initial loading of the wire, under his direction, by the Marine Services Shore Support group. The lab representative will also give advice concerning all aspects of handling special cables.
4. Proper cable handling procedures should be followed at all times for CTD type electromechanical cables; these procedures are available (see Head, Program Support, Coastal Oceanography).

Report of Observations/Samples Collected by Oceanographic Programmes (ROSCOP)

APPENDIX F BIO Engineering and Technical Services Work Order

BIO Engineering and Technical Services Work Order

In order to provide the best service to the customer the following information should be supplied on the Work Order:

- Customer name, including first initial.
- Assess costs to customer section: Include both section, subsection, and collator number.
- Telephone number and alternate name is important.
- Refer to number under project identifier.
- Date submitted is usually no problem, but date required should be included to accommodate the system (even through it may not be very accurate).
- Provide details in the body of the text.

  Sample: Require 50 HP winch and power unit from Marine Services. Crane, welding shop, machine shop, and electrical shop are required to load aboard and hook up. Same shops required for removal of same at end of voyage (include both dates if known).

- The key is to be specific, do not assume that Marine Services and/or the shops involved know what you want.
- All Work Orders must initially pass through Marine Services (attach to Plan Form "B").
- All costs incurred are to be paid by the user.
- Groups outside Scotia Fundy Responsibility must include a letter of authorization (attach to Form "B"), including financial coding, in the event of Marine Services entering into the cost recovery process.
- Any questions may be directed to the Assistant Marine Superintendent, Operations, Marine Services.

DEPARTMENT OF FISHERIES AND OCEANS

RELEASE AND WAIVER

I, _____ of

_____in consideration of

being permitted:

a) to be a visitor or user on any premises, facilities, of field party areas or

b) to be a passenger in any transport owned by or operated for Her Majesty in right of Canada,

related to _____ at

_____ until

_____, 199 , hereby

c) assume all risk of death and injury to my person and loss or damage to my property and

d) release and forever discharge Her Majesty in right of Canada and Her Ministers, officers, and employees, and any of Her or their heirs, executors, administrators, successors, or assigns, from all actions, claims, and demands whatsoever that I, my heirs, executors, administrators, successors, or assigns, or anyone else acting through me may have against Her or them by reason of death or injury to my person or loss or damage to my property.

suffered while I was such a visitor, user, or passenger, except where caused by any reckless or intentional breach of duty of Her Majesty or any of Her Ministers, officers, or employees.

SIGNED, SEALED, AND DELIVERED this _____day of _____,199__.

_____
(seal)
Visitor, User, Passenger

_____

Witness

APPENDIX H Fisheries Research Notice - Form 1

Fisheries Research Notice

Number: FRB-_____

DURATION *(starting and ending dates)*: START _____ END _____

CITIES OF DEPARTURE AND RETURN: DEPARTURE: _____ RETURN _____
(Vessel or aircraft)

VESSEL NAME:

OFFICER IN CHARGE:

SCIENTIFIC STAFF:

FISHING GEAR USED *(size and mesh - describe)*:

AREA(S) OF WORK:

OBJECTIVES:

RESPONSIBLE OFFICER:	DATE:

APPROVAL:

_____	_____	_____	_____
Division Chiefs	Date	Director	Date

FISHERIES RESEARCH NOTICE - DISTRIBUTION LIST

NOTICE NO: BSB 1994-_____

AREA MANAGERS

_____ Area Manager, Southwestern New Brunswick (Box 210, St. Andrews, N.B.)
_____ Area Manager, Eastern Nova Scotia (Sydney)
_____ Area Manager, Southwestern Nova Scotia (Yarmouth)

_____ Chief, Fish Management (Dept of Natural Resources and Energy, P.O. Box 6000, Fredericton, N.B.)
_____ Operations Room, Surveillance Operations Unit (Maritime Centre)
_____ Central Registry Files (Original plus one copy)

BIOLOGICAL SCIENCES BRANCH

_____ Chief, Marine Fish Division (BIO)
_____ Chief, Freshwater and Anadromous Division (Box 550, Halifax)
_____ Chief, Benthic Fisheries and Aquaculture Division (1707 Lr. Water St.)
_____ Director, St. Andrews Biological Station (St. Andrews, New Brunswick, EOG 2XO)
_____ Chief, Biological Oceanography Division (BIO)
_____ Chief, Habitat Ecology Division (BIO)

OTHER INDIVIDUALS CONCERNED (TWO COPIES TO EACH)

1. _____

   _____

2. _____

   _____

3. _____

   _____

Revised January 1995

APPENDIX J Notification of Proposed Research Voyage in Foreign Waters

Notification of Proposed Research Voyage in Foreign Waters

To be completed seven (7) months in advance of a intending operations in foreign waters.

Forward to Marine Services - Assistant Marine Superintendent, Operations. The

Senior Scientist/Hydrographer is responsible for completing Part A, Section 6 - onward.

This form must be typed. Attach Plan "B" if available.

GENERAL - PART "A"

1. Name of Research Vessel:_____ No.: _____
2. Dates of Voyage: From: _____ To: _____

3. Operating Authority:

_____
_____
_____
_____
_____

Telephone Number: _____
FAX Number: _____

4. Owner *(If different from #3)*

_____
_____
_____
_____
_____

Telephone Number: _____
FAX Number: _____

5. Particulars of Vessel

Name:_____
Nationality:_____
Overall Length:_____m
Maximum Draught:_____m
Propulsion:_____
Number of Crew:_____

6. Number of Scientific Personnel:_____and

Name and Address of Scientist in Charge:

_____
_____
_____
_____

Telephone:_____
FAX Number:_____

7. Geographical area in which vessel will operate (with reference in latitude and longitude):

8. Names of intended ports of call and anticipated dates:

9. Any special logistic requirements at ports of call:

DETAIL - PART "B"

1. Name of Research Vessel:_____ No.: _____

2. Dates of Voyage: From:_____ To: _____

3. Purpose of research and general operational methods:

4. Attach chart showing (on an appropriate scale) the geographical area of work, positions of intended stations, tracks of survey lines, positions of moored/seabed equipment.

5. Types of samples required, e.g., geological,water,plankton, fish, radioactivity, isotope, etc:

and methods by which samples will be obtained (including dredging, coring, drilling).

6. Explosives:
   - (a) Type and Trade Name:
   - (b) Chemical Content:
   - (c) Department of Trade, Class and Stowage:
   - (d) Size:
   - (e) Depth of Detonation:
   - (f) Frequency of Detonation:
   - (g) Position in Latitude and Longitude:
   - (h) Dates of Detonation:

PART "B" (Cont'd)

7. Details of moored equipment:

Dates		Description	Latitude	Longitude
Laying	**Recovery**			

8. Detail and reference of:

(a) Any relevant previous/future voyages:

(b) Any previously published research data relating to the proposed voyage (attach separate sheet if necessary):

9. Names and addresses of scientists of the coastal state in whose waters the proposed voyage takes place, and with whom previous contact has been made:

10. State:

(a) Whether visits to the vessel in port by scientists of the coastal state concerned will be acceptable:

(b) Whether it will be acceptable to carry onboard an observer from the coastal state for any part of the voyage, and the dates and ports of embarkation and disembarkation.

(c) When the research data from intended voyage is likely to be made available to the coastal state and, if so, by what means.

PART "B" (Cont'd)

11. **Scientific Equipment** - Complete table below:
SEPARATE COPY FOR EACH COASTAL STATE: _____

List of all major marine scientific equipment it is proposed to use and indicate waters in which the equipment will be deployed.	**Within Fishing Limits**	**On Continental Shelf**	**DISTANCE FROM COAST**			
			Within 3 N.M.	**Between 3-12 N.M.**	**Between 12-50 N.M.**	**Between 50-200 N.M.**

APPENDIX K Supernumerary Ship's Personnel Declaration of Health

Supernumerary Ship's Personnel

Declaration of Health

SUPERNUMERARY SHIP'S PERSONNEL DECLARATION OF HEALTH

In the Matter of scientific, survey or research operations on a Department of Fisheries and Oceans Vessel.

Canada

Province of:_____

County (or District) of:_____

I,_____, of the Province of _____, in the
(name in full)

_____ of_____, _____, do
(city, town, etc.) (name of town) (occupation)

solemnly declare that:

1. To the best of my knowledge I have no physical or health problems as might endanger the safety and well-being of the vessel and crew with which I shall be employed.

and I make this solemn declaration conscientiously believing it to be true.

DECLARED Before me as witness at _____

this _____day of_____, A.D., 19_____.

_____ _____
(Master, or other authority) (Signature of Declarant)

DÉCLARATION DE SANTÉ DU PERSONNEL SURNUMÉRAIRE À BORD DES NAVIRES

Dans le domaine des études scientifiques, des levés et des recherches réalisées à partir d'un navire du Ministère des Pêches et des Océans.

Canada

Province:_____

Comté (district):_____

Je soussigné,_____, de la Province de_____,
(nom complet)

dans la _____ de _____, _____,
(inscrire cité, ville, etc.) (nom de la ville) (profession)

déclare solennellement:

1. Être, à ma connaissance, atteint d'aucune maladie ni affection physique pouvant menacer la sécurité et le bien-être du navire et de l'équipage avec lequel je travaillerai.

Je fais cette déclaration solennelle en mon âme et conscience.

DÉCLARATION faite devant témoin à _____

le _____, 19_____.

_____ _____
(Capitaine, ou autre autorité) (Signature de l'intéressé)

APPENDIX L Senior Scientist's Checklist

Senior Scientist's Checklist

SENIOR SCIENTIST'S CHECKLIST

ACTION	CONTACT	TIMING	REFER SECTION
TIME FRAME: 6 MONTHS OR MORE PRIOR TO VOYAGE.			
1. Request ship time by filling in Form "A". Attach completed "Initial Environmental Assessment Form*.	Regional Director, Science	August, September	Appendix B
2. For planned work in Foreign Waters prepare detailed voyage plan and "Notification of Research Voyage".	Assistant Marine Superintendent, Operations, Marine Services	7 months prior to anticipated departure	3.6; Appendix J, Form 1
3. Plan a full experimental program (including allowances for forced deviations from original plan), in the form of a detailed scientific voyage program.	Branch Director, Marine Services; Collaborating scientists and technicians	1-6 months before departure, depending on nature of expedition	3.1; Appendix B
TIME FRAME: 3 TO 6 MONTHS PRIOR TO VOYAGE.			
4. For work which could damage fish or marine mammals.	Assistant Marine Superintendent, Operations, Marine Services	4 months prior to departure	3.6; Appendix A, A.1
5. For work in waters adjacent to National Parks.	Assistant Marine Superintendent, Operations, Marine Services	4 months prior to departure	Appendix A, A.2
6. For work where fixed fishing gear may be encountered.	Area Manager, FHMB, Marine Services	4 months prior to departure	3.9; Appendix H
7. For geophysical surveys, inform the many agencies of details of voyage.	Assistant Marine Superintendent, Operations; Marine Services	4 months prior to departure	3.6; Appendix A, A.1
8. Prepare and submit Form "B". Attach detailed scientific voyage program if available.	Assistant Marine Superintendent, Operations, Marine Services	3 months prior to departure	3.7; Appendix B
9. For equipment such as EM cables, corers, CTD's, blocks, etc., arrange for loan well in advance of departure (attach pertinent Work Orders for equipment installation to Form B).	Assistant Marine Superintendent, Operations can often suggest possible sources; Laboratory equipment representatives	3 months prior to departure.	3.4; Appendix D; Appendix F
TIME FRAME: 1 TO 3 MONTHS PRIOR TO VOYAGE.			
10. Plan for the shipping of gear to/from departure/arrival port as required.	Assistant Marine Superintendent, Operations; Ship's Master/Chief Officer	3 months prior to voyage.	
11. For fisheries research voyage complete	Your Branch Director, Marine	6 weeks prior to	3.9; Appendix

"Fisheries Research Notice" informing area managers, etc. of fishing work. Attach to Form "B".	Services	departure	H
12. If visiting a foreign port, take appropriate steps before and during the voyage (passports, knowledge of country's customs, etc.).	Marine Services; Management Services	One month or more prior to departure	4.7
13. Arrange meeting with ship's officers to outline your plans for the voyage and discuss loading scientific equipment.	Master and Chief Officer	Well prior to voyage when ship is at B.I.O.	3.3
14. Arrange for equipment installations (B.I.O. Work Order, Appendix F).	Assistant Marine Superintendent, Operations, Marine Services	At or prior to voyage planning meeting.	3.2; Appendix D
15. Meet with senior scientists of voyages before and after your own, to minimize equipment changes.	Senior Scientists	Prior to voyage planning meetings.	3.5
16. Arrange voyage planning meeting(s).	All concerned (including Assistant Marine Superintendent, Operations)	At least one month prior to voyage.	3.2; 4.1; 4.3
17. Plan and arrange for support for non-routine operations, extensive deck operations, and, in the case of a 1 day turn-around, loading.	Assistant Marine Superintendent, Operations; Manager, Engineering and Technical Services; Hydrography - Navigation Specialist	At least one month prior to sailing.	3.2
18. Obtain medical certificates (Supernumerary Ships Personnel Declaration of Health) from scientific staff.	All scientific participants, Marine Services	Normally one month prior to sailing.	3.8 Appendix K
19. Make arrangements for gear to be unloaded on return to port: use Work Order (attached to Voyage Plan B).	Assistant Marine Superintendent, Operations; Ship's Master/Chief Officer	1 month prior to voyage. Prior to ship's port call.	5.1; Appendix B, Form B; Appendix F
TIME FRAME: 10 DAYS TO 1 MONTH PRIOR TO VOYAGE.			
20. Assign responsibilities to subordinate staff regarding loading, cabin allocations, etc. Inform Marine Services of details.	Assistant Marine Superintendent, Operations; Supervisor, Shore Support	Well prior to beginning of loading.	3.10; Appendix C
21. Spool electromechanical cable onto winches. Arrange for shore support via Work Order (for all work including loading and unloading of equipment, a Work Order is required, Appendix F).	Assistant Marine Superintendent, Operations, Marine Services	Well prior to beginning of loading.	3.2; Appendix D; Appendix F
22. When voyage involves dredging, coring, etc., make sure area is free of cables.		Prior to voyage.	3.6; Appendix A
23. When planning to lay buoys, or work near	Assistant Marine	Prior to voyage.	3.6

major traffic lanes, prepare Notices to Mariners.	Superintendent, Operations, Marine Services; Master of Vessel		
TIME FRAME: THE 10 DAYS PRIOR TO DEPARTURE			
24. Ensure all WHMIS regulations are properly followed. All required M.S.D.S. and spill kits to be forwarded to Ship's Chief Officer.	If clarification required, contact Assistant Marine Superintendent, Operations, Marine Services	Prior to sailing.	3.11
25. Ensure that stationery and other supplies are onboard, including scientific and bridge logs if required.	Contact for Log Books: Assistant Marine Superintendent, Operations	Prior to voyage.	4.4; 4.5
26. Liaison with Marine Services and Master prior to voyage.	Assistant Marine Superintendent, Operations. Master	Daily as soon as loading commences.	3.2
27. Give staff-cabin assignment to ship. Make list of next-of-kin and forward to Marine Services.	Master and/or Senior Steward; Assistant Marine Superintendent, Operations	Several days before sailing (e.g., 7 days).	3.7; 3.10; Appendix C
28. Check installed equipment for operation.	Assistant Marine Superintendent, Operations if not functional	As soon as installed.	3.11
29. Table any last minute changes to voyage plan (Form "B").	Assistant Marine Superintendent, Operations, Marine Services	Up to the day before sailing.	Appendix B
30. All non-federal employee must complete Waiver and Release Form (Appendix G). Verify list of next-of-kin is complete and forwarded to Marine Services.	Assistant Marine Superintendent, Operations	Attach to Form B or provide prior to sailing.	3.7; 3.11; Appendix G
TIME FRAME: SAILING DAY			
31. Check all scientific gear is onboard, properly secured, and that staff are onboard.	For loading and securing, see Chief Officer	On sailing day.	3.11
32. Hold general scientific staff meeting - tell all scientific staff of protocols of ship, discipline, etc.	All concerned (meeting led by Master and Senior Scientist).	Immediately prior to departure.	2.0; 4.1; 4.6
TIME FRAME: DURING VOYAGE			
33. Hold regular (daily or more often) meetings with Ship's Master re scientific program.	Ship's Master	At least one day prior to sailing and daily throughout voyage.	3.11; 4.1

34. Submit weekly scientific progress report by INMARSAT (FAX) to Chief, Marine Services.	Ship's Master	Regularly during voyage (Sunday transmission for long voyages).	4.4 (4)
35. Confirm arrangements for gear to be unloaded by contact with Marine Services via INMARSAT FAX..	Assistant Marine Superintendent, Operations.	Prior to ship's port call.	5.1; Appendix B, Form B; Appendix F
TIME FRAME: LAST DAYS OF VOYAGE TO 2 WEEKS AFTER VOYAGE.			
36. Discuss accomplishments and shortfalls of voyage.	Ship's Master and Chief Officer	On the last leg of the voyage.	4.8
37. Voyage debriefing meeting.	Ship's Master	Very shortly after docking.	5.2; Appendix B
38. Submit Form C (including track chart and winch performance/repair report).	Chief, Marine Services	At debriefing meeting.	5.2; Appendix B
39. Prepare and submit ROSCOP forms.	Data Shop, Ocean Circulation Division, BIO	Last days of voyage or up to 2 weeks after voyage.	5.3; Appendix E
40. Submit scientific voyage report..	Your Branch Director	Within 2 weeks after voyage terminates.	

APPENDIX M Telephone Numbers and Radio Call Signs for Scotia-Fundy Science Vessels

The numbers listed below are for the official internal use of the Department of Fisheries and Oceans, and are not to be made generally available.

VESSEL	SHORE PHONE	INMARSAT PHONE	INMARSAT FAX	FAX	CELLULAR PHONE	CALL SIGN
CSS PARIZEAU	902-426-7747 M 902-426-3737 G	011-874-156-1504	011-874-156-1505		902-497-1098	CGBS
CSS HUDSON	902-426-6058 M 902-426-3679 G 902-426-5090 P	011-874-156-0604	011-874-156-0612		Note: New fitting under construction	CDDG
CSS MATTHEW	902-426-3137 M 902-426-3680 G	011-874-156-1254	011-874-156-1255		902-456-5887 (709-551-1252 Autotel Mobile)	CFC5481
CSS ALFRED NEEDLER	902-426-3749 M 902-426-5122 G	011-874-156-1256	011-874-156-1257		902-497-7551	CG2683
CSS NAVICULA	902-426-6087				902-497-8267	CG2364
CSS EE PRINCE	902-426-2031				902-456-3059	CGDK
FRB PANDULUS III	506-529-8854			506-529-4274	506-467-5154	VC2459

NOTES 1. M = Master/Chief Engineer, G = Gangway/Quartermaster, P = Purser.

2. INMARSAT Ocean Area Code may occasionally be 871 (normally 874).

3. FRB Pandulus III may have different phone numbers from time to time.

4. Marine Services (902-426-7292) maintains an up-to-date directory, in case of problems.

5. Secure voice and FAX communication is available to/from vessels with INMARSAT. Consult Marine Services.

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