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RESEARCH AND DEVELOPMENT PROGRAM

R&D MINI-MANUAL

(Abbreviated Procedural Guide)

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17. Abstract

The 2002 Canadian Coast Guard Research and Development procedures require frequent updates to reflect organizational changes and process improvements associated with new business planning processes mandated by the Treasury Baord. This Mini-Manual provides a short-form direction to all CCG project managers and administrative officers responsible for planning, contracting and reporting of research and development projects. Detailed procedures are listed in the larger R&D Procedures Manual but the full text manual is updated less frequently.

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RESEARCH AND DEVELOPMENT

MINI- MANUAL and INSTRUCTION GUIDE

FOREWORD

This new condensed version of the *CCG R&D Procedures Manual* is a short term guide for CCG project managers and administrative officers who are responsible for the planning, contracting and reporting of research and development (R&D) projects.

This short form version of the *CCG R&D Procedures Manual* is intended to be updated frequently and to provide a core outline of those updates. Each new edition of the mini-manual supersedes previous information. Periodically, the *CCG R&D Procedures Manual* will be updated a new version posted to the CCG internet site.

The R&D process, by its very nature, is dynamic. Procedures change in response to the changes in the overall government approach to business planning and in response to organizational restructuring within the CCG. It is the intent of this mini-manual to update existing processes to reflect new organizational factors.

Officers are encouraged to recommend improvements to the process and identify procedures where clarity or enhancement would be advantageous.

All queries and suggestions relating to this manual should be addressed to:

Research and Development Office
Canadian Coast Guard
Telephone: (613) 990-3087
Fax: (613) 996-8902

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1. R&D PROGRAM

1.1 INTRODUCTION

Federal departments and agencies use research and development to solve specific operational and technical problems, and to develop new knowledge. Within the Canadian Coast Guard (CCG), Research & Development (R&D) is an integral part of CCG's effort to respond to its strategic challenges and to improve the cost effectiveness of its operations by developing new technologies, improving its operational procedures and improving the "human factors" element for CCG personnel.

CCG's research activity also promotes Canadian industry through contracting-out, technology transfer agreements, joint-ventures, dissemination of knowledge and (in some rare cases) joint product development.

Funding for the CCG R&D program is obtained from the CCG O&M budget. R&D funding is delegated annually, based on a plan approved by the Management Board. The CCG also benefits from R&D funds obtained from other departmental and interdepartmental R&D programs, such as the Program for Energy R&D (PERD), the National Search and Rescue's New SAR Initiative Program (NIF), the Canada Space Plan (CSP), Government on Line (Goole), and the Climate Change Action Fund (CCAF). New programs under development include the Innovation Initiative out of Industry Canada.

Within the CCG's new organizational structure (effective April 03, 2000), the overall R&D program is administered by the CCG R&D Office. The CCG R&D Plan is reviewed by the CCG R&D Committee and presented both to the Planning and Resource Allocation Committee (PRAC) and to the Management Board for approval by the Commissioner or his designate.

R&D projects are identified by the various program and service delivery groups, at Headquarters or in the regions. Projects which are strictly technical and relate to the life cycle management of the CCG asset base, are normally the prerogative of the ITS group. Operational or management related research projects (ie: non-technical) may be initiated and managed throughout the CCG.

1.2 R&D PLANNING

1.2.1 CCG Strategic R&D Directions

Each fiscal year, CCG Branches/regions develop Business Plans which incorporate their individual statements of future direction, activities, resource requirements, outcomes and performance measurement criteria. These Business Plans are developed using the CCG Strategic Directions as their backdrop. R&D projects are subsequently developed (updated) to meet the technological or knowledge gaps, between the current level of understanding and that which is required to meet the needs of the new business plan. The R&D plan comprises those project proposals required to solve the technological barriers to program change over the short-to-medium-term horizon.

1.2.2 Fiscal Year Plans - CCG R&D Plan

Each June, branches and regions receive a call letter requesting that the R&D plan be updated with new or revised submissions. By late fall, the CCG R&D Office will have consolidated a list of new R&D project proposals for review by the CCG R&D Committee. The results of the Committee's review constitute the R&D plan for the forthcoming fiscal year. This plan is referred to the executive for funding approval. The CCG R&D Plan reflects the highest priority operational requirements of each branch/region as well as an appropriate scope given anticipated resource levels and "leveraged" funding from other sources.

The R&D Plan includes all R&D projects in which the Canadian Coast Guard is involved, including those wholly or partially funded by other sources or agencies. Additional detail on other sources of funding is listed below.

1.2.3 CCG Business Lines / Service Lines

All DFO sectors receive their funding from Treasury Board and track these resources by business lines and service lines.

1.3 EXTERNAL SUPPORT FOR CCG's R&D PROGRAM

The CCG R&D program is much larger than the funding provided through the CCG O&M (Operations & Maintenance) account. Through cooperative arrangements, partnerships or joint-ventures, the CCG accesses funds for CCG R&D projects from a number of sources. This involves CCG in a more extensive program than would be possible if funding was only available from internal sources.

Specific assistance in respect of each external source of funding is available through the CCG R&D Office.

1.3.1 Other Federal Programs/Agencies:

1.3.1.1 Transport Canada -Transportation Development Centre (TC-TDC)

The Transportation Development Centre (TDC) is Transport Canada's dedicated research group, located within Transport Canada (TC). The central focus of the TDC's marine technology R&D program is to support TC's regulatory role. However, issues of design, regulation and safe operation of vessels often overlap with operational concerns. Shared research initiatives are common.

1.3.1.2 Program for Energy R&D (PERD)

The federal Program of Energy Research and Development (PERD) began in 1974 and is administered by the Natural Resources Canada (NR-Can). Under the new PERD structure, a number (30+) of theme areas have been established. These theme areas are called "Programs at the Objective Level" or POLs. The POLs are planned on four-year cycles, so involvement in the PERD process requires a long term view and early planning for application.

1.3.1.3 Climate Change Action Fund (CCAF)

Priority environmental initiatives impacting the questions of climate change are considered through the CCAF program. Start-up funding was allocated in the year 2000 over a three-year period. Renewal of the program is under deliberation by Cabinet.

1.3.1.4 New SAR Initiative Fund (NIF)

The New Search and Rescue Initiatives Fund (NIF) is a unique undertaking by federal and participating provincial, municipal and private Search and Rescue (SAR) organizations. It's objective is the saving of lives by enhancing SAR prevention and the provision of SAR services. NIF is not specifically oriented to R&D projects but, rather, was established by the federal government to provide funding to new initiatives which enhance the effectiveness of SAR by all participants, especially those outside government. It is noted here solely as a source of funding to external partners.

1.3.1.5 Canada Space Plan (CSP)

Funded by the Canada Space Agency, the Canada Space Plan funds R&D with a strong "applications" orientation. Funding for all federal "marine" projects runs at approximately one half million dollars annually. This is a reasonably small amount and reflects the current difficulties in mounting near-term applications developments from a space-based platform. Annual requests for proposals arrive via the departmental "space" coordinator in the DFO Science Branch. The CCG is invited to participate in this program.

1.3.2 OTHER R&D PROGRAMS

1.3.2.1 Networks of Centres of Excellence (NCE) - GEOIDE

Industry Canada (IC), supports several initiatives for the development of advanced (enabling) technologies in Canada. One element in the promotion of specially targeted technologies is the Networks of Centres of Excellence (NCE) program. Closely paralleling the activities of the three granting agencies (NSERC, SSHRC, and MRC), the NCE program provides a granting structure to support specific activities through multiple-university (and industry) partnerships. One of the current target activities is the use of "geomatics for improved decision-making" or GEOIDE.

The NCE/GEOIDE structure requires departments to contribute (Grants and Contributions) to the overall program. As a benefit of participation, projects selected for support will be assigned to multiple university researchers (cross-fertilization) and will receive additional support funding from the program. This innovative research support program is best suited to longer-term complex research issues involving the development of new knowledge with potentially system-wide applications.

Advice on the NCE initiative is available on request from the CCG R&D Office.

1.3.2.2 NR-Can Geo-Connections Program

The Geo-Connections Program is a 1999 initiative of the five resource-based departments and is funded at $60million over five years. The program is designed to promote the improved utilization of data and information in Canada's various renewable and non-renewable resource sectors. This program is a national partnership program and it is targeted toward making Canada's geographic data and information more accessible to Canadians. Funds are available from the GeoConnections program to help resolve the technical issues which may be proving barriers to the effective utilization of distributed data bases.

1.3.2.3 International and Inter-Governmental Programs

The CCG R&D Office, with support from the Client Services Directorate, is responsible for coordinating specific international R&D (umbrella) agreements. These agreements are not the sole venue for international cooperation, as a number of other committees do exist for the exchange of information and joint-development of operational issues (eg: The International Maritime Organization (IMO Marine Environmental Protection (MEPC) or IMO Safety of Life at Sea (SOLAS)).

Another major international opportunity is the European Union. The EU funds research amongst its 13 member countries in five-year "frameworks".

2. ROLES AND RESPONSIBILITIES

2.1 INTRODUCTION

In 1995 the CCG was integrated with the Department of Fisheries and Oceans. The role of the CCG in supporting the ocean mandate of that department was seen as being essential to Canada's long term goals of managing her total marine resource and to preserving the marine environment.

In 2000, the CCG introduced a new CCG organizational structure at Headquarters. A process-based matrix style management has been implemented. Insofar as this new structure does have some implications for R&D management, it is important to take note of several points. First, there is now one center of expertise for technical-based work, the Integrated Technical Services Unit. As noted previously, this activity is not the sole research activity. But, under this management philosophy it will be more commonplace for program/service-based clients to draw staff resources essential to the performance of R&D initiatives from across organizational lines. Second, planning for research projects, under a matrix-style structure, requires more pre-consultation and specific project charter agreements for the assignment of (ITS) staff to projects. Third, improved project management processes spell out more clearly the timelines and products to be achieved.

This section briefly outlines some of the primary responsibilities as they relate to the new organizational structure.

2.2 CCG R&D COMMITTEE:

2.2.1 CCG R&D Committee

Chaired by the CCG Director-General for Marine Programs, the CCG R&D Committee comprises Directors for each of the major HQ directorates, and CCG Regional Directors of Programs (or their alternate). This committee provides an authoritative forum for review of matters relating to engineering and regulatory studies within CCG. The CCG R&D Committee obtains annual funding approval from the Planning and Resource Allocation Committee (PRAC) and the CCG Management Board (MB). It derives its authority directly from the Commissioner.

The CCG R&D Committee reviews CCG's Strategic R&D Plan, the CCG Annual R&D Plan and the marine submissions to other funding sources (eg: PERD) to ensure that they are complementary and that the projects being proposed are properly prioritized. This committee also advises the Commissioner of Canadian Coast Guard on policies, priorities and specific issues of concern to the marine community at large. The implications of departmental and national policies, studies and initiatives are also reviewed.

2.2.2 CCG R&D Project Initiation and Implementation

Under the CCG organizational structure there are specific responsibilities for R&D project conception, initiation, performance and implementation.

R&D projects are identified by the various program and service delivery groups, at Headquarters or in the regions. Technical research projects are addressed to the ITS group for project delivery. Technical projects are identified as those projects relating to the CCG’s major assets and the Life cycle management of those assets. If necessary, ITS will contract with a third party for the requisite expertise and/or capacity. Operational or management related

research projects (ie: non-technical) may be initiated and managed throughout the CCG. The end product of technical research projects will be incorporated into the life cycle management planning for capital acquisitions. The end product of operational or management-related research projects is implemented and/or communicated by the service delivery unit responsible for its initiation.

2.2.3 PERD Panel

The CCG is also represented at the PERD “Panel”, by the Director General, Marine Programs. The CCG R&D Office is responsible for collecting input from CCG Branches and coordinating requests with the DFO representative to assure a one-department submission. In addition, the CCG R&D Office takes the lead in consultations with other departments to assist CCG officers in advancing co-ordinated input to the PERD POL leaders.

2.3 CCG R&D PROGRAM - ROLES AND RESPONSIBILITIES

Both Regional and HQ Branches and officers are involved in R&D projects. They work together to accomplish the goals of the R&D program and ensure that the plans are executed with a minimum of duplication or overlap.

2.3.1 R&D Co-ordinator

Each Branch (Regional or HQ) has a designated “Co-ordinator” or contact point. This coordinator is normally that group’s CCG R&D Committee member (or a designate). It is the responsibility of that officer to participate in the R&D program and to provide a coordinated input to the CCG R&D Office. The "coordinator" is at a sufficient level, or is authorized, to speak categorically for a branch or region, at the R&D Committee, on all research applications.

2.3.2 Project Manager

At HQ, individual Project Managers prepare national-scope R&D initiatives in support of operational, regulatory and/or procurement needs of their program or service. Where appropriate, these proposals will be coordinated with other HQ directorates, or regions, to assure maximum 'buy-in' and incorporation of critical issues.

Regional Project Managers develop R&D projects based on regional and client needs unique to that region. These proposals must be coordinated with the respective HQ functional authority and with the CCG R&D Office. It is also desirable, where mechanisms exist (eg: NEEC) that other regions also be consulted or participate in major technical themes.

HQ Program and/or Functional Branches co-ordinate, and consolidate all projects within their area of program or service accountability.

All proposed and ongoing R&D project initiatives are submitted on a Project Justification (PJ) form. See full manual or CCG web site for copies of current forms. The forms are submitted either to the branch Co-ordinator or, when there is no Co-ordinator, to the Program Director or Regional Director for approval, prior to submission to the R&D Office. The CCG R&D Office screens proposals for inclusion in the CCG R&D Program. Projects which are accepted under the screening process are submitted to the CCG R&D Committee for evaluation and prioritization.

1. HQ and Regional R&D Project Officers are responsible for:

- researching prior experience to avoid duplication;
- consulting with other regions/branches/clients to validate project concepts;
- establishing a shadow project team and developing project charters (where appropriate)
- preparing PJ forms;
- identifying project resource requirements and forecasts;
- soliciting “leverage” funds;
- preparing contract requisition documents;
- supporting Contract Officers;
- evaluating scientific/technical portions of proposals as appropriate;
- being the Scientific Authority (as appropriate);
- project management;
- execution of changes;
- progress monitoring;
- performance measurement;
- completing status reports; and
- communication of results.

2. R&D Co-ordinators are responsible for:

- preparing and co-ordinating the Branch R&D plan and activities;
- assuring broad-based consultation with clients;
- soliciting leverage funds;
- assisting in the preparation of Project Justification documents;
- reviewing and presenting proposals to the Program or Regional Director;
- representing the branch on the CCG R&D Committee; and
- keeping Project Managers up-to-date on R&D procedures.

2.3.3 CCG R&D Office

The CG R&D Office is the focal point for the co-ordination of R&D activities within CCG. It is responsible for maintaining a synoptic (strategic) R&D overview and for assisting program units with the incorporation of technological opportunities into their business plans. The CCG R&D Office will also compile and publish the CCG's Annual R&D Plan; compile and publish CCG's Annual R&D Report; co-ordinate CCG's R&D planning with other agencies such as DND or Transport Canada’s Transportation Development Centre; promote co-operation on R&D projects between Branches; and ensure that reporting requirements with respect to CCG R&D are completed in a timely manner. The responsibilities also include:

2.3.4 Business Planning Office

The Marine Program's "Business Planning Office" assists the CCG R&D Office in the preparation of delegation documents. The Business Planning Office also supports the CCG R&D Office in the maintenance of the information contained in the financial reporting system.

3. CCG ANNUAL R&D APPROVAL PROCESS

3.1 INTRODUCTION

The CCG's annual R&D process commences in June with a call letter for Project Justification documents (PJs). Each branch and region prepares and submits their bilingual project proposals (PJs) to the CCG R&D Office for screening and consolidation, by mid-September. After screening for completeness, and after being cross-referenced to other interested groups to assure full consultation has taken place, these proposals are submitted to the CCG R&D Committee for evaluation and prioritization. Proposals failing the screening criteria are either rejected as inappropriate or returned to the originator for further work. The CCG R&D Committee will apply specific selection processes to all agreed submissions and will finalize their recommendations in the form of a CCG R&D Plan, generally late in December. The CCG R&D Plan, comprising the successful projects, is recommended to PRAC and the Management Board for funding, generally by end of February.

Funding for the subsequent fiscal year commences on April 1st (or as close as possible) with DM delegations. For reporting purposes, the year-end reports cover the period to March 31. Submissions to each year's Annual Report are generally due by the end of June.

3.2 REQUEST FOR R&D PROJECT PROPOSALS

PRELIMINARY CONSIDERATIONS:

As indicated above, the annual call letter for R&D proposals is issued in June. There are a number of steps to be completed before compiling a Project Justification form.

First, the concept must be appropriate to the CCG's mandate. The CCG R&D program is an "applied" program. It exists to assist in the development of the technologies/knowledge required to implement the business plan. For the most part, CCG R&D projects will address the short-to-medium term. As well, national issues would be directed from HQ. Regionally-specific issues would be hosted locally.

In all cases, the research proposed should be original. The proponent must assure that similar work has not be done before, or been done in other regions/branches. This is accomplished by prior bibliographic research, consultation and use of existing committee mechanisms.

Once a project has been validated as being "new" it still remains to make preliminary studies sufficient to confirm that there is a potentially positive cost-benefit ratio (or business case), and that the appropriate groups which would implement the successful results have agreed to the incorporation of that action into their future business or capital plans.

Finally, in the event of a technical project which would be referred to the ITS group for management, it is important to discuss the availability of the appropriate ITS resources and to begin drafting a project charter. In the event of a technical proposal arising out of the ITS group, it is equally important to have a "client" who endorses the program application and will sign-on as Project Director.

BEGIN DRAFTING:

There are two basic documents which may have to be completed, to initiate a project. In a simple case, the Project Justification form (PJ) is the basic document in the CCG R&D project justification process. PJs are used to illustrate how projects fall within the CCG business planning framework, to determine the priority of the project within branch/region plans, and to provide a basis for discussion papers for consultation with industry. PJs also provide input document for the CCG Annual R&D Plan and other communication tools which are given wide distribution within government, industry and the R&D community.

In a more complex case, where technical work is being assigned from a program/service group to the ITS group, a Project Charter or similar inter-group agreement will be required. The Project Charter serves the function of assuring the dedication of specific R&D project management services to the project for a specified period of time, as well as setting out any related resource requirements (ship time) and a management structure.

Details on how to complete a PJ and its associated costing schedules are listed in the detailed Procedures Manual.

3.2.1 Project Justification Form (PJ)

The PJ is the essential document to attain project approval.

The costing schedule, the last page of the PJ form, shall be signed by the respective Program or Regional Program Director indicating his/her approval of the project and his/her assurance that the end product, if successful, is intended to be introduced to the CCG program.

Project Justification forms are to be translated and separate English and French files submitted to the CCG R&D Office. Project Charter agreements are also to be copied to the CCG R&D Office.

Where funds are assigned to an external agency for project implementation (eg: TDC Branch), a separate project charter agreement or broad accountability contract must exist which describes the various terms and conditions for financial management and the process by which approvals for such amendments would be authorized. Any third party project manager must not reallocate funds between projects assigned to third-party management without an adequate review of the overall impact and approval by the funding branch or region.

Under no circumstances are funds to be moved to non-approved projects.

In general, an amendment to the budget of a project for either the purpose of re-assigning funds to another project or increasing the budget, requires completion of form Budget Transfer Form. Additional details for moving funds are listed in subsequent sections.

3.3 CONSULTATIONS

3.3.1 Consultation between Headquarters and Regional Offices

Regions are integral contributors to and facilitators of CCG research. As prime deliverers of the services performed by CCG, they have a distinct view on the technological barriers facing the CCG at the front line. There are direct benefits to incorporating regional R&D requirements.

There are several mechanisms to assure that adequate inter-regional and inter-branch consultation has taken place.

Over the summer (August-September), HQ R&D Coordinators will contact their respective regional coordinators (plus the regional program officers) with respect to potential R&D requirements. The objective is to assure awareness of all issue areas and to limit duplication.

Regional Offices will consult with their HQ counterparts to ensure that their projects are included in the program and have HQ support.

When an authorized agent (RC manager or Director) signs the PJ to approve its submission, it is that officer's responsibility to assure that the above noted processes have been completed.

CCG R&D Office will ensure that adequate consultation occurs across the CCG, by validating that each HQ program/service coordinator has seen all regional proposals and vetted such proposals as being non-duplicative. Duplicates will be removed as part of the screening process.

All PJs will then be screened to assure they meet the terms of the R&D Program, prior to being advanced for consideration by the R&D Committee.

3.3.2 Consultation between CCG and External Performers

There are many (federal) agencies or institutions with a capacity to assist the CCG in the performance of its research activity. These services include laboratories, project management services, scientific authority, and shared funding of projects. To facilitate programming and planning, and to ensure that there is coordination and compatibility between the most frequently utilized agencies (eg: TDC, NRC, EC) yearly consultation meetings are recommended:

- CCG R&D project managers and coordinators meet for technical discussions and forward planning. Give indications of anticipated program directions and funding for projects of mutual interest.

- Follow-up meetings with the CCG R&D Coordination Office to display the partnering strategy and develop a knowledge base on external sources of expertise is encouraged.

By the same token, external agencies (such as TDC) may have projects which they wishes to pursue from theirs own funds **but** for which they require an external client. TDC may, for these projects, ask CCG to give client endorsement and to share in the funding. Branches must be aware that in becoming a ***client*** for a TDC project the branch assumes full ***client responsibilities*** for the project. Branches entering into any agreement with any agency, as a client, should be prepared to identify their own internal project manager and clearly delegate those responsibilities. Where funding or services-in-kind are anticipated, a Client Agreement must be completed.

3.3.3 Consultation with CMAC/Industry

CCG wishes to ensure that its R&D program is adequately reviewed by R&D stakeholders in the marine and R&D communities on an ongoing basis. Consultations are specifically structured to ensure relevant input and dialogue on new proposals and directions***.*** The consultative process envisages specific industry presentations such as those scheduled for the fall CMAC meetings and more focused seminar-style consultations with specific interest groups.

3.3.4 R&D Plan Approval

The CCG R&D committee, under the formal chairmanship of the Director General, Marine Programs, will review, prioritize and recommend R&D projects. During the CCG R&D Committee meeting, sponsoring Branch and Regional Directors are invited to highlight new R&D projects, ongoing projects, and their respective strategic R&D plans.

Over the late fall and winter period, the CCG R&D Committee will undertake those discussions and evaluations necessary to select and prioritize the R&D proposals deemed to be most appropriate, given the financial limitations of the program. The approved program will be forwarded to the Planning and Resource Allocation (PRAC) committee and then to Management Board (MB) for final approval and funding.

Delegation takes place as early in the new fiscal year as practical.

3.3.5 Delegation

To ensure a seamless flow in the R&D process, and to ensure that projects go to contract as early as possible in the new fiscal year, the CCG R&D provides branches/regions with an advance list of those projects which have approval from the CCG R&D Committee and for which funding allocation can be expected. This early notice is followed by official delegation of funds.

RC managers receiving funds under the R&D Program do not need to wait for formal delegation to actually commit funds to (new) projects. The situation varies slightly between HQ and the regions, but (as a blanket statement) R&D projects can be initiated using funds assigned to each Branch DG budget or regional Director budget. Interim supply funds are available to this level, effective April 01. The interim supply vote provides a basis against which new projects can be funded. As well, invoices for ongoing projects can be paid in this same manner.

Once the R&D delegation is completed, the funds can be rationalized by a coding transaction.

R&D funds being delegated to the regions are included in the block funding assigned by the DM. R&D Coordinators in the regions must take measures to have the funds transferred from the suspense account to the appropriate RCs, as indicated in the R&D Plan.

The preparation of delegation documents for the Headquarters takes place separately, in the CCG R&D Office. As with the regional funds, delegation will take place as early in the new year as practical:

- For new projects, funds will be delegated to the client group and then sub-delegated to the ITS, assuming a project charter and project officer exist. This established the source of the funds and the line by which funds will be returned should the project be cancelled.
- For ongoing projects, where there are no problems and the project officer continues to function in the original capacity, funds will be delegated directly to the ITS.
- Where a project officer is no longer available or where there are reported disagreements in project direction or management processes, funds will not be delegated until such time as an appropriate (approved) change order is registered.

There are a couple of additional process points which will have to be introduced to assure that these principles, as set out under the PMBoK process, can be achieved:

- Project charter documents will have to be copied to the R&D Office (preferably at the same time as the original PJ)

- Changes in project status, or project officer availability, will have to be reported to the R&D Office
- The R&D procedures will continue to allow minor lapses in funds, for projects tasked to ITS, to be re-assigned to other projects (under $10 k) on the Project Director's authority, provided the other project falls within that Project Director's approved list of projects. Funds may not be re-assigned to other projects outside the Project Director's approved list. (NOTE: copies of budget amendment forms must be provided to the R&D Office)
- Major lapses (over $10 k) must be returned and re-assigned via the R&D Office/Committee
- Other projects in either Marine Programs, Fleet or IBM will be treated similarly, although in these cases no project charter document exists.

3.3.6 CCG R&D Plan (publication)

Upon approval of the R&D Plan, the CCG Office prepares, publishes and distributes the Plan for the current fiscal year to R&D performers and other stakeholders. The Plan is distributed in April/May.

3.3.7 Year-end Status Reports and CCG Annual R&D Report (publication)

Accountability for the R&D program is accomplished through the preparation of *Year-end Status Reports* and the subsequent publication of the results of our research and development projects in the *CCG Annual R&D Report*. This publication is widely distributed within the government, marine industry and the R&D community.

The R&D Annual Report is based on the information contained in the year-end status reports submitted by the branches. A year-end status report form must be completed for each project for which money was spent. Full details on R&D project reporting requirements are found in Section 4 of this manual.

The Annual Report is distributed in September.

3.3.8 Performance Measurement and Program Review

In the context of the R&D program, performance is measured at three levels.

Individually, projects must contribute to CCG programs or service elements. A special section is provided on the project justification form to indicate measures which will be monitored to assure successful results from projects.

At the program level, the aggregate contribution of the R&D program to overall goals and objectives must also be measured. The CCG R&D Office will work with the Performance Measurement group to develop this aspect.

At the administrative level, procedures and support services will be assessed to assure best value for money.

3.4 IN-YEAR PROJECT APPROVAL or AMENDMENT PROCESSES

3.4.1 General

Changes to the approved R&D plan are divided into two categories:

- **new project** approval; and
- **project amendment** approval.

Each category follows a slightly different approval process.

3.4.2 "New Project" Approval

A new project is one which is not included in the current year CCG R&D Plan. All new projects introduced into the plan subsequent to the annual approval requires the signature by the Commissioner or his designate. In requesting approval, it is necessary to identify other project(s) that are deferred or have a budget reduction to offset the budget of the new project.

3.4.3 Project Amendment Approval

During the year the scope and cost of an approved project may change. If lapsing funds are available through the CCG R&D Office, these funds can be reallocated to projects. The CCG R&D Office will complete a Budget Amendment Form. Funds may also be moved within a series of pre-approved projects, under one Project Director's control, up to $10,000. Care should be taken to clearly identify projects which are "cancelled", "deferred" or "completed". The RC can raise the necessary Budget Amendment form and copy the CCG R&D Office.

4. R&D PROJECT REPORTING REQUIREMENTS

4.1 INTRODUCTION

The initial approval and continued funding of an R&D project is based on the information contained in the initial (or annual updates to) Project Justification forms. NOTE: Project Justification forms are updated annually to reflect changes in the TEC, annual allocations requested, timelines, etc. The information contained in these forms also contributes to the measurement of project effectiveness (performance measurement) in relation to CCG objectives and to the assessment of project administration.

4.2 GENERAL R&D EXPENDITURE AND STATUS REPORTING REQUIREMENTS

During the fiscal year, R&D Project Managers/coordinators are required to report three times during the course of any one year for each project, indicating project achievements, problems, planned expenditure data and milestones. Mostly, these reports are used to identify impending lapses and to permit early re-assignment of funds.

4.3 CCG R&D YEAR-END REPORT

The CCG R&D Office compiles and publishes an Annual Report each year summarizing CCG's R&D activities during the previous fiscal year, benefits achieved, and a financial distribution of funds by project. The year-end status report provides the input for the Annual R&D Report which contains a summary of final reports published during the past year.

CCG Project Managers are encouraged to submit pictures, drawings of their project activities and special interest stories which will increase the visibility of the benefits of the CCG R&D program.

4.4 REPORTS IN PERIODICALS AND PROFESSIONAL JOURNALS

CCG Project Managers are also encouraged to submit reports or special interest stories concerning the results of their project activities to both in-house and external publications. Increased awareness of the results of this valuable research will assist the CCG in developing commonly-accepted roadmaps to the future, amongst the marine community. Such informative articles can also assist in the promotion of product and provides a valuable support to Canadian industry in making sales of product developed under this program. Articles also increase the visibility of the benefits of the CCG R&D program and assist the executive in measuring the value of the program for future funding.

As the untimely release of some information could be contentious, project officers are invited to work with the CCG R&D Office to strategize a publication plan.

5. R&D CONTRACTING & PROJECT MANAGEMENT PROCESSES

5.1 INTRODUCTION

Almost all CCG R&D is carried out under contract by consultants, organizations in the private sector, or other federal research agencies. Further, under the new organizational structure introduced on April 03, 2000, the Integrated Technical Services (ITS) Branch has been designated as the primary office for the acquisition of technical services expertise and contracting support, in respect of the CCG's major capital assets. The intent of this section is to provide project managers with the general procedures and documentation requirements relative to direct contracting-out for non-technical/management-oriented research projects, and/or developing project charters with the ITS Branch to acquire support for contracting-out technical R&D projects.

5.2 R&D CONTRACTING RESPONSIBILITIES

5.2.1 General:

Research projects let directly by CCG officers to industry are all processed through PWGSC. Officers may execute their Request for Proposal by utilizing support services offered by DFO's Procurement Services Branch, (HQ/regional) or by directly contacting the Public Works & Government Services Canada (PWGSC).

Specific procedures for requesting proposals (RFP), developing a statement of work (SOW), and selection method and bid evaluation are also discussed on the DFO Corporate Services web site.

5.2.2 Technical Projects Tasked To ITS

Where projects are tasked to the ITS group, the general procedures follow. However, in order to assure a more consistent project management methodology, the ITS group has adopted a standardized management approach, based on the PMBoK project management process. Under this project management methodology, specific terminology is used to identify the heirarchy of officers, roles and responsibilities. The project management process provides a clarity in assigned tasks, resources and processes. It is important to be familiar with this characterization and to implement similar processes in all parts of the CCG:

5.2.2.1 Project Sponsor:
The group for whom a project is being undertaken. The Office of Primary Interest and, normally, the funding office.

5.2.2.2 Project Director:
CCG Project Director is the authorized representative of the Office of Primary Interest (OPI) having full signing authority. Regardless of where individual responsibilities for various management aspects of a project are assigned, the Project Director has management oversight responsibilities for all steps in the project, including the contracting process, except where lead responsibility has been assigned to another agency. For projects being conducted by the ITS Branch on behalf of the OPI, the oversight role of the (client/OPI) Project Director, and the ITS Scientific Authority, may be additionally specified in a "project charter".

5.2.2.3 Project Leader (Manager):

The CCG Project Leader is the authorized representative of the performing group (ITS), who also has full authority to dedicate personnel and other related resources to a project. In the case of projects assigned to ITS, the Project Leader would oversee ITS personnel and would be responsible for consistently producing key results expected by the client group. On a larger project, the Project Manager might also be the Project Leader.

5.2.2.4 Project Officer:

The Project Officer is the person assigned day-to-day management responsibilities for the contracting/performance of the specified terms of reference and for over-seeing multi-disciplinary teams in the stated contract work. The Project Officer is the primary point of contact with consultants/consulting engineers from the private sector. The Project Officer is authorized (subject to charter terms) to accept goods and services for payment, but not to commit to obtaining such goods and services.

5.2.2.5 Scientific Authority

For each project, there will normally be a Scientific Authority. The Scientific Authority is the person with requisite specialist knowledge (be it a technical specialist or informed client) to deal in an authoritative manner with those persons, or agencies, conducting research on behalf of the CCG. The Scientific Authority is authorized to accept or reject product and to provide technical guidance on the evolution of a project. The Scientific Authority may, or may not, be authorized to make progress payments. The Project Manager may also be the Scientific Authority. ITS will provide the Scientific Authority for technical research projects leading to asset acquisition.

In terms of processes, a project team will draw upon in-house resources to define the need for, and possible scope of, a project. When roughly “costed”, this information will be presented to the appropriate responsible officers who will authorize the development of a project charter. The function of the project charter is to formalize and agreement amongst the performing and client groups as to scope, tasks, responsibilities, timelines and resources. The management processes described in the charter will be observed and any changes in project scope/time/resources will be cleared through those management processes. Variances are not permitted except by the agreement of the authorized parties.

5.2.2 Materiel, Contracting & Facility Management, Contracting Services

The DFO Procurement Services Branch provides internal contracting services for DFO/CCG. The Procurement Services Branch records contract requests and will transmit larger contract requisitions to PWGSC.

R&D contracts in excess of $25,000 are handled by PWGSC. Administrative contracts under $25K are handled internally.

5.2.3 Public Works & Government Services Canada (PWGSC)

The government places a high priority on the use of science and technology to generate wealth in Canada, and PWGSC provides a central monitor and control point for R&D. Thus,

PWGSC provides contracting services for most federal R&D. The MERX ™ system of electronically posting requests for proposals, standing offers and advance procurement notices is a state-of-the-art tendering system which provides for the fast and effective transmission of contracting data to the North American consulting and scientific community.

The Science branch of PWGSC, the Science Procurement Office (SPO) works with client departments to expedite and conclude R&D contracting activities. The SPO manages contractual arrangements between government and contractors.

5.3 LETTERS OF AGREEMENT - EXTERNAL PARTNERS

Letters of Agreement are to be entered into when the R&D project is undertaken on behalf of the CCG by another federal agency, such as the Transportation Development Centre (TDC) or the National Research Council (NRC), or through international cooperation. The purpose of establishing a formal understanding is to assure that an agreed and compatible funding process is in place.

5.4 INTERNATIONAL CONTRACTING

In addition to the international cooperation, noted above, there is also a question of international contracting and/or participating financially in the research of an international partner.

Under the North American Free Trade Agreement (NAFTA) contracts tendered competitively are accessible by the NAFTA partners. There are some limitations and competitive advantages provided within the NAFTA framework, but there are technically no barriers to transborder contracting with NAFTA signatories.

As well, and subject to any restrictions unique to the given project, any company worldwide may bid (competitively) on a domestic research project. Common strategies include strategic industry alliances, using a legitimate business registered in the host country as the nominal bidder.

More frequently, however, the CCG will wish to participate with a third country in a specific R&D project of mutual interest. In this case, the establishment of a country-to-country or department-to-department agreement to cooperate in specific areas (such as marine research) is a first step. This legal framework authorizes cooperation with another government department. In this case, one department may contract for services within its jurisdiction and will invoice the other department for its share of the product, under the terms of the cooperation agreement (and in keeping with an internally approved project proposal).

5.5 INTELLECTUAL PROPERTY (IP)

On June 01, 2000 the Treasury Board approved a new policy in respect of ownership of intellectual property arising under Crown contracts. The new policy stipulates that The primary objective of Crown Procurement Contracts is to receive the deliverables contracted for, and to be able to use those deliverables, and any Intellectual Property arising by the virtue of such Crown Procurement Contracts for Government of Canada activities. The Government of Canada's *Contracting Policy* further states that officials are to achieve best value for money and to seek the optimal balance of benefits to the Crown and the Canadian people through its purchases. As part of this commitment, the Government of Canada has made specific provisions for social and economic development objectives to be pursued through procurement.

One of the socio-economic objectives pursued through Crown Procurement Contracts is the commercialization of Intellectual Property by the private sector to create jobs and generate economic growth. The revised policy on *Title to Intellectual Property Arising Under Crown Procurement Contracts* sets out a framework for the Intellectual Property arising by virtue of such Crown Procurement Contracts to be vested in the Contractor, while ensuring the Crown's ability to use the deliverables contracted for and the Intellectual Property for all Government of Canada activities, including future contracts and procurements, and to protect the broader public interest.

PWGSC advises contractors:
Under the revised policy on ownership of intellectual property, contractors may now take title to inventions and intellectual property, developed under Crown contracts. The intellectual property considerations of government sponsors and the proposer will be taken into account during contract negotiations.

Section 1-6 of the CCG's R&D PJ form explicitly addresses the criteria by which an officer may determine whether to protect or release IP rights, under contract. The CCG R&D Office provides additional advice on how to maximize benefits from retained IP.

5.6 DISCLOSURE OF INVENTIONS BY PUBLIC SERVANTS

New technologies may be invented in the course of performing federally-funded R&D. Project managers are required to identify such inventions, both for purposes of patents to be registered in right of the Crown and for any awards or monetary compensation that may be provided under various federal inventor award programs.

5.7 SOLE SOURCE

Proceeding to a sole source contract may take more time than using the Open Bidding System (OBS). Sole source contracts may be entered into when it can be clearly demonstrated that:

- the estimated expenditure of the requirement does not exceed $25,000 (all costs including GST, travel and other allowable expenses);
- the need is one of pressing urgency in which delays would be injurious to the public interest;
- the nature of the work is such that it would not be in the public interest to solicit bids; and
- only one person or firm is capable of performing the contract (NOTE: This element does not infer that IP or copyright ownership is a valid reason for limiting the potential pool of contractors. Where the target company for a sole source contract is the holder of IP or copyright material critical to the project, an Advance Contract Award Notice (ACAN) may be posted to pre-alert competitors to the intention to use a sole source procurement mechanism. Competitors may self-identify as alternate bidders).

5.8 PARTNERING and JOINT-VENTURES

The development of specific items of equipment or operational procedures, may offer significant potential to benefit a Canadian industry, particularly with respect to its recognition as a regional (or national) center of expertise, and/or its future ability to sell products or services, domestically or abroad. Various partnering (or joint-venture) arrangements are possible.

Because partnering or joint-venture projects often give the appearance of sole source contracting, it is important to give full attention to the rules of contracting and to the procedures which are permitted, under government policy.

Partnering is a term commonly used in the field of "alternate service delivery". The core element of partnering, in this context, is the fact that a third party is involved in the delivery of a government service but remains isolated from the government in terms of legal liabilities or the ability to commit resources on behalf of the government.

In the research context, the CCG may create specific partnering agreements with private sector organizations, where the objective is to share information and views on specific research themes but not to participate financially in a jointly managed program or to provide exclusive access to that group of partners to the federal (CCG) research program.

The essence of the partnering agreement is mutual benefit without mutual entanglement.