



**Final Report  
2009-605**

# **Evaluation of Marine Inspection and Technical Services**

**November 3, 2011**

**Office of Audit and Evaluation**





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## **MAIN POINTS**

### **What we evaluated**

i. Marine Inspection and Technical Services (MITS) provides inspection services during the construction and maintenance of non-military, government-owned marine vessels to ensure compliance with contract specifications. Resources permitting, MITS can provide technical services related to marine vessels and facilities under the mandate of other departments or other governments on what is to be a cost recovery basis; however, PWGSC largely subsidizes the services through the Department's A-base. MITS resides within the Marine Systems Directorate under the Marine Sector of Acquisitions Branch.

### **Why it is important**

ii. The Government of Canada owns and operates a fleet of non-military marine vessels used to carry out its mandate and deliver various services to Canadians. For example, Canadian Coast Guard vessels conduct search and rescue missions and fisheries research; they also provide icebreaking services to keep Canadian Arctic waters accessible for marine traffic and to support other marine vessels through or around ice covered waters. Other departments, such as the Royal Canadian Mounted Police and Environment Canada, also own and operate marine vessels for the purpose of delivering other services; these include environmental protection, law enforcement, and border patrol.

iii. Marine Inspection and Technical Services provides inspection to support the procurement process for the purchase or repair of marine vessels or marine equipment. Marine inspection serves to ensure technical compliance with contract specifications; quality assurance that the vessel and/or equipment will perform as required; and value for money in that the Government of Canada has paid a fair market price for the goods or services. Departments with marine fleets, and ultimately Canadians, benefit from having marine vessels that operate safely and efficiently in the delivery of services.

### **What we found**

iv. While there is a continuing need for marine inspection services, there is no continuing need for PWGSC to provide the services. Marine inspection remains an important function for user departments, but the provision of this service by PWGSC is no longer aligned with federal and departmental priorities.

v. In terms of outcome achievement, results were mixed. While it was demonstrated that inspectors were generally completing their work as required, confidence in the work performed was not consistently satisfactory. A formal performance measurement system was not in place and formal guidance across regions, in areas such as service standards, was weak. Overall, there was a general consensus that MITS was adding value with its services.

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vi. While MITS demonstrated efficiency and economy, concerns remain over increased risk as a result of escalating demand for diminishing resources. The evaluation found that changes may be required to the manner in which MITS is delivered based on the *National Shipbuilding Procurement Strategy*. This may increase the role of the private sector in marine inspection.

**Implications of Strategic Review**

vii. At the time this evaluation was conducted, PWGSC was one of 13 departments reviewing its priorities through the Strategic Review process. As part of Budget 2011, the government announced the initiatives that PWGSC would implement, including elimination of some programs. In identifying MITS for elimination, it was noted that while an important function, MITS is a responsibility that rests with the user departments as technical authorities and as such would no longer be offered by PWGSC. PWGSC is ceasing work in technical inspection as of December 2011, while maintaining its accountability as a contracting authority.

viii. In light of the wind-down of the program, recommendations to program management are not presented in this evaluation.

## **INTRODUCTION**

1. This report presents the results of the Evaluation of Marine Inspection and Technical Services. The Audit and Evaluation Committee of Public Works and Government Services Canada (PWGSC) approved this evaluation as part of the *2009-2010 to 2013-2014 Risk-Based Multi-Year Audit and Evaluation Plan*. The evaluation was conducted in accordance with the Government of Canada evaluation standards. Its purpose was to examine MITS' relevance and performance.

## **PROFILE**

### **Background**

2. Marine Inspection and Technical Services (MITS) provides quality assurance support for marine procurement. Within PWGSC's Acquisitions Branch, Customized and Unique Procurement Services conducts complementary activities such as major project and marine contracting services. MITS' services largely support these activities by providing for the inspection of the construction and repairs/refits of non-military marine vessels owned by the Government of Canada. The goal is to ensure that the goods provided and the work performed adhere to contract specifications. MITS' areas of expertise include, but are not limited to:

- Marine structures and vessels made from steel, aluminum, fibreglass and wood;
- All aspects of marine engineering;
- Marine and shore based electrical engineering;
- Non-destructive examinations and evaluations;
- Project management of new construction projects
- Representing clients during major repairs and vessel refits; and
- Contracting expertise in all areas of marine procurement.

3. Over the last six years, MITS provided inspection services for construction, repairs and refits of Canada's non-military fleet for contracts totalling \$630.5 million for the Canadian Coast Guard, the Royal Canadian Mounted Police, Environment Canada, Parks Canada, the Canada Border Services Agency, and Transport Canada.

4. MITS is delivered in four regions: National Capital (including Ontario), Pacific, Quebec and Atlantic. In the National Capital Area, the Senior Director, Marine Systems Directorate, is responsible for MITS. This includes providing guidance on service standards across the regions. Outside the National Capital Area, activities are delivered through Acquisitions Branch staff, with the Regional Directors General responsible for operations.

## **Program Activities**

5. The guiding principle for MITS is to provide contract quality assurance for the technical authority (e.g. Canadian Coast Guard) to ensure that work is completed according to contracting specifications. To this end, MITS performs the activities of inspection, contract support, contract amendments, and technical services.

### *Marine Inspection*

6. On-site marine inspection occurs for construction, refits and repairs of marine vessels to ensure that the goods provided and work performed adhere to the specifications of the contract. Marine inspection covers all items detailed in the planning and purchasing of orders including items such as hull/machinery, electrical/electronic and mechanical equipment, and working drawings.

7. The specific inspection activities and the extent of inspection depend on whether the contract is for repairs, new construction, major refit, or factory testing. Inspection activities can include: inspection planning; on-site inspection of materials, equipment and quality of work; documenting defects and deficiencies and ensuring they are corrected; witnessing and reporting the results of tests and trials; identifying potential contract amendments; documenting inspection results and signing off on the inspection plan; and reporting progress to the contracting authority. When the work is not completed to specifications, the MITS inspectors will ensure that the appropriate measures are taken to ensure that the work is completed accordingly before the technical authority signs off on Section 34.

8. In addition to their inspection duties, inspectors have been delegated contracting-related authorities:

- **Contract support to contracting authority:** Contract support to the contracting authority begins with the review of specifications and technical information. Advice is provided to the contracting authority and the client department on the specifications with respect to “inspectability”, contractual risk and “contractability” of technical requirements. Contract support is provided during the evaluation of bids. An inspection plan, including resources required, is designed. In addition, advice is provided to the contracting authority as, and when, required throughout the process.
- **Tasked contracting authority:** When inspectors are on the work site, they also administer contract amendments on behalf of the contracting authority. They chair progress review meetings with the contractor. When required, they negotiate contractual matters to accommodate proposed changes or additions. This occurs in cases of “work arising,” that is, when goods or services not anticipated at the time of contracting become necessary. Inspectors also prepare and issue the contract amendments.



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### *Technical services*

9. Technical services require the technical expertise of the marine inspectors, but do not involve repair or construction of marine vessels. The most common type of technical service is facility evaluation. Other technical services offered are the development of the contract specifications, technical report writing and training course delivery. Technical services are performed much less frequently (comprising about five per cent of the work or less), and as such are excluded from the scope of the evaluation.

### **Resources**

10. The operating cost to PWGSC for providing MITS for fiscal year 2009/10 was \$3.0 million, with 30 full-time equivalents. In the PWGSC Program Activity Architecture, MITS is situated under the Specialized Programs and Services program activity. MITS is administered by Acquisitions Branch, Marine Sector, Marine Systems Directorate, Inspection and Technical Services Division.

11. Over the evaluation period, a total of 879 marine vessels were serviced — an average of 147 marine vessels per year — with a total contract value of \$630.5 million. The Pacific region serviced the greatest number of marine vessels (371), followed by Atlantic (232), National Capital Area (194), and Quebec (82). Over this same period, while the value of contracts increased by 318%, operating costs and the number of full-time employees decreased.

### **Authority**

12. MITS operates under the authority of the *Department of Public Works and Government Services Act* which states that “the Department shall operate as a common service agency for the Government of Canada, and its activities as a common service agency shall be directed mainly toward providing the departments, boards, and agencies of the Government of Canada with services in support of their programs.”

13. Authority for marine inspection and technical services is derived from a 1977 Privy Council study on the procurement of marine vessels wherein it was recommended that the (then) Department of Supply and Services “arrange for the technical support required by those departments not having the necessary resources.” This recommendation was approved by the Government of Canada on May 5, 1977. In response to this recommendation, the MITS program was formed. Responsibility for the services delegated in this decision was transferred to PWGSC when the Department of Supply and Services and the Department of Public Works amalgamated in 1993.

14. MITS also operates under the optional services defined in Appendix F of the Treasury Board *Common Services Policy*. According to section 5.13.2 of the policy, “for new and refit buildings, transportation and other built works projects, the services offered include preliminary feasibility studies; developing conceptual, preliminary, and final designs with cost estimates and schedules; preparing detailed working drawings, specifications, and

tender documents; providing advice during the bid review and award of contract; and inspecting and supervising work, including the environmental effect, the warranty review, quality control, and commissioning of the work.”

## **Governance**

15. PWGSC marine inspection services operate under two different models. In the Atlantic region and National Capital Area, marine procurement is conducted by a contracting authority responsible for overall procurement, while an inspector is responsible for on-site inspection and contract management on behalf of the contracting authority.

16. In the Pacific and Quebec regions, each inspector officially acts as both inspector and contracting officer. In the Pacific region, the roles of Technical Inspectors and Senior Engineering Procurement Officers were combined during a reclassification exercise in order to retain the incumbents. Since the reclassification exercise, two Senior Engineering Procurement Officers positions were recreated where the incumbents were qualified in marine-related procurement, but did not have the pre-requisite professional qualifications to be Technical Inspectors. In the Quebec region, the functions are combined in one office, though there is a Senior Engineering Procurement Officer tasked with the contracting and Technical Inspectors are tasked with the inspections; however, the Technical Inspectors have the delegated authority to perform contractual amendments to ongoing work.

## **Stakeholders**

17. There are several federal government departments which regularly use PWGSC for the procurement of new marine vessels or for contracting the repairs for existing marine vessels. These are the Canadian Coast Guard, the Royal Canadian Mounted Police, Environment Canada, Parks Canada, Canada Border Services Agency, PWGSC, and Transport Canada.

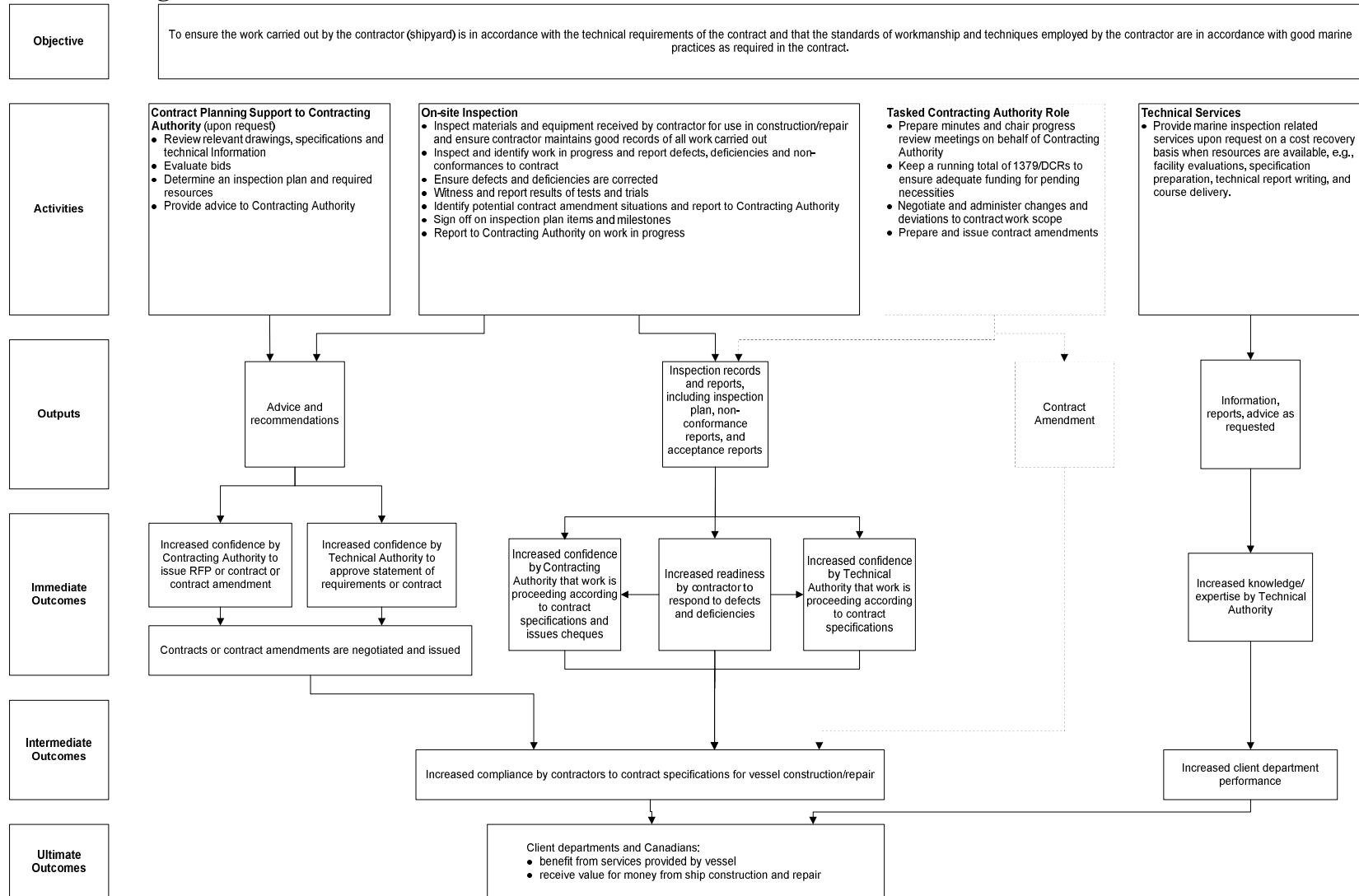
## **Logic Model**

18. A logic model is a visual representation that links a program’s activities, outputs and outcomes; provides a systematic and visual method of illustrating the program theory; and shows the logic of how a program, policy or initiative is expected to achieve its objectives. It also provides the basis for developing performance measurement and evaluation strategies, including the evaluation matrix.

19. A logic model for MITS was developed based on a detailed document review, meetings with program managers, and interviews with key stakeholders. It was subsequently validated with program staff and is presented in Exhibit 1.

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### Exhibit 1: Logic Model



## **FOCUS OF THE EVALUATION**

20. The objectives of this evaluation were to determine MITS' relevance and performance in achieving its planned outcomes in accordance with the Treasury Board *Policy on Evaluation*. As the technical services component of MITS represents only a small fraction of overall activity, effort was concentrated on marine inspection services throughout the course of the evaluation.

21. An evaluation matrix—including evaluation issues, questions, indicators and data sources—was developed during the planning phase. Multiple lines of evidence were used to assess MITS. These include:

- a) *Document Review*: Over 70 documents were reviewed to gain an understanding of MITS and its context, current issues, and practices.
- b) *Literature Review*: A literature review was conducted through the holdings of the PWGSC library. This review provided insight into how the private sector and other countries execute the marine inspection function.
- c) *Project File Review*: A random sample of 10% of projects (102 files) from all regions from 2004-05 to 2009-10 demonstrated the processes followed by MITS for varying degrees of project complexity. This information was used to gain insight into the processes and to conclude on performance.
- d) *Interviews*: Gathered the perspectives and opinions of PWGSC personnel (inspectors, managers and contracting officers) and representatives of client departments, as well as Transport Canada and National Defence officials. From the private sector, shipyard owners/representatives, members of Classification Societies, and naval architecture firms were interviewed. The interviews focused on the interviewees' level of confidence in the contracting process as a result of inspection and the effect of inspection on compliance. This information was used to gather informed opinions on need, client satisfaction, efficiency and effectiveness of the services.
- e) *Financial Analysis*: Review and analysis of financial and other data on services performed was conducted across regions over the six most recent fiscal years. The number and value of contracts were also included in the analysis. This information was used for comparison of resources in relation to demand.

22. More information on the approach and methodologies used to conduct this evaluation can be found in the *About the Evaluation* section at the end of this report. The evaluation matrix is provided in Appendix A.

## **FINDINGS AND CONCLUSIONS**

23. The findings and conclusions below are based on multiple lines of evidence used during the evaluation, presented by evaluation issue (relevance and performance). The evaluation findings relate to marine inspection, not technical services, as marine inspection accounts for the vast majority of program activity.

### **RELEVANCE**

24. Relevance was assessed based on the extent to which MITS addresses a demonstrable and continuing need; is aligned with federal and departmental priorities; and is aligned with federal and departmental roles and responsibilities.

### **CONTINUING NEED**

25. Continuing need assesses the extent to which MITS continues to address a demonstrable need and is responsive to its clients. Lines of evidence reviewed to evaluate continuing need included: the ongoing validity of MITS' original rationale; the legislation surrounding MITS' delivery; and the use of its services by clients.

26. The original rationale for MITS stems from the 1977 Privy Council study. According to the study, PWGSC was to arrange for the provision of marine inspection and quality assurance services; however, the context within which this study was conducted is important to note. A sub-committee chaired by Treasury Board reported in 1977 that there was an "interdepartmental competition for the scarce human resources required to carry out this function." The current context is quite different from 1977 as there is significant private sector capacity for marine inspection, as discussed in the Alternative Delivery section of this report.

27. From a policy perspective, while MITS was created as a result of the study's recommendation, it is offered as an optional service under the Treasury Board *Common Services Policy*. Other departments have always had the ability to arrange for other sources of supply to fulfill their needs with respect to the quality assurance and inspection of marine contracts. The Treasury Board *Contracting Policy* indicates that "it is the responsibility of departments and agencies to ensure that adequate control frameworks for due diligence and effective stewardship of public funds are in place and working." As such, the quality assurance of contracts is ultimately the responsibility of user departments.

28. With respect to demand, it is anticipated that client demand for marine inspection services will increase. The existing Canadian fleet is aging, with many ships well past their intended service life requiring more frequent and more complex repairs and refits. In addition, the National Shipbuilding Procurement Strategy (NSPS) will increase the overall size of the fleet, resulting in new ship construction in Canadian shipyards and further increasing demand for marine inspection services. However, it will be several years before the first large ships are built under the NSPS.

29. Overall, the rationale for PWGSC to offer MITS is no longer relevant given the alternative delivery options in both the private and public sectors. As well, the responsibility for assuring quality resides within user departments. As Canada's marine fleet ages, and with the NSPS increasing the size of the fleet, the demand for marine inspections will not only increase, but may change the way in which inspections will be carried out. PWGSC's responsibility as a contracting authority remains relevant; however there is no continuing need for PWGSC to provide the MITS services.

#### **ALIGNMENT WITH FEDERAL AND DEPARTMENTAL PRIORITIES**

30. Alignment with federal and departmental priorities is determined by assessing the degree to which the issue MITS is intended to address is considered in both federal and departmental priority-setting reports and documents.

31. Evidence suggests that Canadian shipbuilding is increasing in its importance as a federal priority. The *Economic Action Plan* allocated \$175 million from 2009 to 2011 to the Canadian Coast Guard to purchase 98 new ships; repair or refit 40 existing large marine vessels; and provided an additional \$49 million for new shipbuilding under the Small Craft Harbours initiative. The March 2010 *Speech from the Throne* recognized the strategic importance of a strong domestic shipbuilding industry and pledged to support the industry's sustainability through a long-term approach for federal procurement. Announced in June 2010, the *National Shipbuilding Procurement Strategy* (NSPS) was designed to revitalize Canada's aging military and non-military fleets. The strategy calls for the building of 28 large marine vessels worth \$33 billion and 116 smaller marine vessels worth \$2 billion. The fulfillment of these commitments will require increased inspections to ensure that standards are met on the construction, repair and refit of these marine vessels. However, these priorities do not necessitate PWGSC providing MITS as the ultimate responsibility for assuring the quality of marine contracts lies within the user departments.

32. As part of Budget 2011, PWGSC, and the federal government as a whole, indicated that PWGSC's delivery of MITS was no longer a priority. While it is noted that marine inspection is important so as to assure the quality of goods and services rendered under a contract, this priority is more directly aligned with user departments who own the responsibility for signing off on the work completed.

33. Overall, marine inspection is aligned with federal priorities; however PWGSC's provision of the service is no longer aligned with federal or departmental priorities.

#### **ALIGNMENT WITH FEDERAL AND DEPARTMENTAL ROLES AND RESPONSIBILITIES**

34. To determine whether or not MITS is aligned with the roles and responsibilities of the federal government, three elements were examined: a) if the responsibility for MITS could be transferred to another level of government (e.g.: to the provinces); b) if the responsibility for MITS could be transferred to the private sector; and c) if the responsibility for MITS could be decentralized to individual departments and agencies.

35. Given the assets are owned by the federal government and that MITS addresses needs that are internal to the federal government, devolving the responsibility for quality assurance of federal government contracts to other levels of government or the private sector is not a viable option. With regard to other government departments, ultimately the responsibility for quality assurance of a user department's contracts lies with the user department. As well, one user department comprises the vast majority of the demand for MITS. Overall, 83% of the work conducted between 2004/05 and 2009/10 was for the Canadian Coast Guard. In Atlantic region alone, the Canadian Coast Guard represented 97% of the work conducted in the region over that period.

36. Overall, responsibility for the quality assurance of marine refit and repair contracts is owned by the user departments as the technical authorities (e.g.: Canadian Coast Guard). As such, it may be more appropriate to decentralize the responsibility for MITS to the user departments.

### **Conclusions: Relevance**

37. There is no continuing need for PWGSC to provide Marine Inspection and Technical Services. The services support federal priorities; however the provision of MITS by PWGSC is no longer a priority of the department. The services MITS provides could be decentralized to user departments, who are ultimately responsible for the quality assurance of their contracts.

## **PERFORMANCE**

38. Performance is the extent to which a program or initiative is successful in achieving its objectives and the degree to which it is able to do so in a cost-effective manner that demonstrates efficiency and economy. This evaluation examined the performance of MITS in providing other federal departments' procurement, contracting, inspection and technical oversight of non-military marine vessels.

### **ACHIEVEMENT OF OUTCOMES**

39. Increased confidence among various stakeholders is a prominent outcome for MITS. In this regard, quality workmanship and strong communication with stakeholders are imperative for increasing and maintaining stakeholder confidence.

40. The evaluation found mixed levels of confidence in inspection among clients. Canadian Coast Guard clients in Pacific and Quebec regions noted that their workload was reduced, and their confidence in the process had increased, as a result of the role of PWGSC inspectors. They viewed the inspection role as vital. While Canadian Coast Guard clients in the Atlantic region and National Capital Area respected the inspectors' expertise and considered the checks and balances appropriate, they were unsure of the specific requirements and extent of the inspections performed by PWGSC. They were

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aware that demand had increased while resources had decreased and that priorities had to be selected.

41. Across most regions, Canadian Coast Guard clients were unsure that the correct level of inspection was being maintained. Concerns were expressed during the evaluation regarding this and the need for more direct communication from PWGSC on ensuring the adequate level of inspection was undertaken in each case. Smaller client departments such as the Royal Canadian Mounted Police, which typically have less marine technical capacity, tended to have a higher level of confidence in the work performed by PWGSC inspectors.

42. Small shipyards across Canada were of the opinion that inspection was adding value, assisting the contracting process, and increasing compliance. However, large shipyards were split in their opinion. While one large shipyard was supportive of PWGSC inspection, another did not see any added value from PWGSC inspectors and viewed the inspection role as interference.

43. Despite the concerns raised by certain stakeholders, a file review of approximately 10% of all projects provided evidence that inspectors were performing the inspection work. The review found that inspectors had reviewed specifications, inspected work for compliance to specifications, investigated work arising (i.e. additional work found to be required after construction or repairs had begun), negotiated a fair price, documented progress, and accepted the marine vessels upon completion. The inspectors' acceptance means that the client department had received the product for which it had contracted. The files displayed the records of all of these functions. For example, in 68% of files reviewed there was evidence of work arising and a final negotiated price. In 13% of files, the negotiation led to a decrease in the contract amount. In 94% of the files reviewed, acceptance documents were included, duly noted and signed.

44. Considering the documented performance of the inspectors, it appears that the concerns raised by clients may be with respect to communication. The evaluation found that MITS lacked a formal, systematic method for collecting and maintaining records of its performance. Inspectors and managers relied on informal and day-to-day feedback from clients on a project-by-project basis.

45. Formal guidance on service standards from headquarters could address other areas that were identified as needing improvement. These issues include professional development in the form of training; formal exchanges; sharing of best practices and lessons learned; and improved communication both within the department and with client departments. Standard operating procedures were identified as an area to be updated to reflect the growing workload and demand, as well as clarification of the role of inspector *vis-à-vis* contract management (at the time of the evaluation, there were two different models used) and development of a formal risk management approach.

46. Overall, the evaluation found that MITS has been performing inspections as intended and largely achieving its objectives. While there were mixed levels of confidence in



inspection across the regions, the general consensus was that MITS is adding value by providing its services. As the service role is transitioned to user departments through the implementation of strategic review, risk modeling and the development, if required, of commensurate performance measures will be conducted to help ensure that the service issues noted here do not continue when the service is decentralized.

## **EFFICIENCY AND ECONOMY**

47. Demonstration of efficiency and economy is defined as an assessment of resource utilization in relation to the production of outputs and progress toward expected outcomes. Efficiency refers to the extent to which resources are used such that a greater level of output is produced with the same level of input or, a lower level of input is used to produce the same level of output. Economy refers to minimizing the use of resources. A program has high demonstrable economy and efficiency when resources maximize outputs at least cost and when there is high correlation between minimum resources and outcomes achieved.

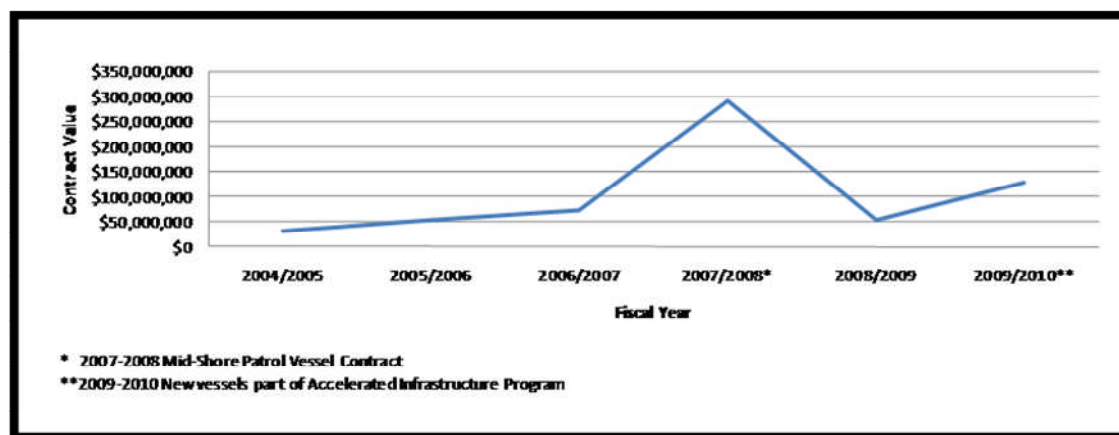
### **Efficiency**

48. Canada's fleet is aging. The last large ships that were commissioned for the Canadian Coast Guard, the owner of Canada's largest non-military fleet, were built in 1987. In 2008-09, there were 40 ships in its large vessel fleet with varying lengths of design life from 15 to 30 years. At that time, 23 of these ships were over 25 years old, nearing or over the design life. Of these, four are now over 40 years old, well beyond their design life. An aging fleet means that the need for repairs and refits will continue to increase. In reviewing the files, the evaluation found that the majority of contracts were for vessel repairs and refits, which together accounted for 73% of the sample files.

49. Program data, illustrated in Exhibit 2, shows that over the past six years, contract values for MITS increased from \$30.5 million in 2004 to \$127.7 million in 2009, for a total of \$630.5 million over the period of 2004-05 to 2009-10. MITS experienced sharp increases in absolute contract values during fiscal year 2007-08 as a result of the Mid-Shore Patrol Vessels construction program, and again in fiscal year 2009-10 as a result of the Accelerated Infrastructure Program.

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**Exhibit 2: MITS Annual Contract Values 2004-05 to 2009-10**



50. While work – as indicated by contract value – increased over the evaluation period, the number of resources decreased. In 2004-2005, each full-time equivalent was responsible for approximately \$710,000 in contract value. By 2009-2010 this figure had risen to \$4.26 million. Interviews with stakeholders confirmed that the volume of work increased, resources decreased, and managers and inspectors adjusted their operating procedures and coverage to accommodate these changes. Key stakeholders stated that managers selected priorities and directed inspection resources towards the higher-value and higher-risk projects, as it was no longer possible to provide complete inspection services to all projects. Both managers and inspectors acknowledged that while this increased overall risk, they were taking steps to ensure the added risk was managed. However, the selection of priorities was carried out on an informal basis and no formal risk management process was in place.

51. Inspectors also noted other negative effects stemming from increased work volume. More overtime, lack of backup for major projects, delayed inspection records, less scrutiny of technical documents, and the inability to offer technical services on a cost-recovery basis were all significant effects due to increasing demand on a shrinking resource base. Despite these constraints, technical authorities in client departments noted that inspections provided a value-added service. PWGSC technical inspectors were able to provide an independent assessment on construction and repair/refit contracts, technical and contractual expertise, project management skills, and an on-site presence.

52. Another closely related human resource issue is that of future marine inspection capacity within the federal government. While this issue was not a specific line of enquiry during the evaluation, concerns regarding the future capacity of marine inspection were raised by interviewees. Becoming a marine inspector requires a high degree of training coupled with varied experience in the marine and shipbuilding industries. For the purposes of procurement, there is also a requirement to have knowledge of federal government contracting. As the current population of federal

government inspectors near retirement age, and interest in the profession among youth remains minimal, the pool of qualified persons for marine inspection is small.

53. Overall, while MITS is able to provide its services in a somewhat efficient manner, concerns pertaining to staffing and future capacity of MITS are increasing. MITS is unable to adequately serve all of its projects due to constraints.

### **Economy**

54. Most interviewees in both private and public sectors were of the opinion that there was no duplication of marine inspection services. Though there are different groups involved in inspection, perhaps simultaneously, interviewees indicated there is a clearly delineated focus that each group brings to the overall marine inspection regime.

55. Marine inspection related to the construction and repair of marine vessels is also required by the *Canada Shipping Act* and the *Canada Labour Code*. Under these authorities, Transport Canada is responsible for inspecting ships with respect to crew and passenger safety as well as environmental protection. This inspection is conducted as a separate function from the PWGSC quality assurance inspection for contracting purposes. For Transport Canada, the inspection focus is safety and the environment. For classification societies, it is verification that a ship is being built and/or maintained according to internationally established design and construction standards.

56. In one case, the issue of duplication was raised by a regional client. A representative of one of MITS' clients indicated that they conduct their own inspection on contracts due to uncertainty about the extent of inspection by PWGSC. The degree to which this duplication was necessary was not validated; however it may be attributable to the communications issues discussed in the achievement of outcomes section of this report.

57. Overall, the evaluation found that the services provided by MITS were not duplicating the activities of other stakeholders involved, thereby demonstrating economy.

### **Alternative Delivery**

58. The delivery method of a program is strongly correlated with efficiency and economy. When alternative program delivery methods exist, it is preferred to use the delivery method that maximizes the use of inputs.

59. The private sector presents several options for establishing new public-private partnerships for the efficient and effective delivery of marine inspection and technical services. Private sector organizations with the appropriate skill-set to fulfill government inspection requirements fall into three categories – classification societies, naval architecture firms, and large shipyards.

60. *Classification Societies:* Classification societies are private sector firms specializing in marine design and construction standards. They use inspection as a means to verify

that ships are built to class and maintained in class, according to the society's standards. These international standards are used by private ship owners to obtain insurance at affordable prices. As the federal government insures its own ships, this requirement for insurance purposes does not apply. As marine vessels are procured or repaired through the *National Shipbuilding Procurement Strategy* (NSPS), departments will have the ability to stipulate in a contract that the vessel be built or maintained to these classification standards. This specification would be added on a per project basis at the discretion of the contract sponsor. This is a new dimension that may need to be added to marine inspection as few ships in the government fleet were built to class, and even fewer have been maintained in class since the government's standards were not as inclusive as those of the classification societies.

61. While these societies have the technical competencies to carry out the work of the inspections, the interests of the federal government need to be protected in order to achieve optimal value for money. As well, the current focus of the work of classification societies is with regard to the adherence to design and construction standards, rather than quality assurance for procurement purposes. It should also be noted that some interviewees indicated that some classification societies may not be interested in dealing with the older ships or small marine vessels, which comprise the majority of Canada's existing non-military fleet.

62. *Naval Architecture Firms:* These firms offer a variety of marine services such as structural and mechanical assessment; material and welding engineering; inspection and maintenance management; naval architecture; marine engineering; environmental services; project management; and drawing design. Naval architecture firms work extensively with classification societies and are well-versed in international marine and shipbuilding standards. The professional and technical capabilities of these firms are comparable to those of PWGSC's marine inspectors.

63. *Private Sector Shipyards:* These shipyards possess the necessary expertise in vessel construction and repair; however it would likely be the larger shipyards that would be most capable of taking on the inspection role, as small shipyards generally lack quality assurance systems and appropriate International Standards Organization certifications.

64. Although large shipyards are capable of providing on-site inspection, there is potential conflict of interest; that which is in the best interests of the shipyard may run contrary to government concerns since shipyards typically operate according to lowest-cost solutions and rapid completion.

65. Overall, the evaluation found that alternative delivery of MITS' services by the private sector may be a viable option. Departments have the ability to request that built and repaired marine vessels be maintained to classification standards as part of the NSPS which may result in a duplication of efforts. The delivery of MITS would be duplicating services readily available in the private sector. In addition, transferring the delivery of

MITS to the private sector may alleviate the pressures related to future capacity which were discussed in the efficiency section of this report.

### **Conclusions: Performance**

66. MITS has been delivering its services as intended and generally achieving its outcomes, though the inspectors were struggling to meet the demand for inspections. Some clients' confidence in PWGSC inspectors was somewhat lacking. As well, there was a lack of general guidance from headquarters on service standards, including the areas of standard processes, procedures, and records management.

67. MITS was providing its services in an efficient and economical manner. There were concerns raised with regard to current and future capacity of marine inspectors; currently resources are stretched in order to respond to an increasing workload and the ability to attract young, qualified potential applicants is very difficult. Alternative delivery by the private sector may be a viable option.

## **GENERAL CONCLUSIONS**

68. There is no continuing need for PWGSC to provide MITS. While MITS has been adequately delivering its intended services, there are areas for improvement, particularly in communication. Risk management and mitigation has become an increasing worry due to declining resource capacity. The requirement to provide increased inspection services with fewer resources has had a negative effect of increasing risk exposure and may be resulting in a decrease in the quality and quantity of available services.

## **IMPLICATIONS OF STRATEGIC REVIEW**

69. At the time this evaluation was conducted, PWGSC was one of 13 departments reviewing its priorities through the Strategic Review process. As part of Budget 2011, the government announced the initiatives that PWGSC would implement, including elimination of some programs. In identifying MITS for elimination, it was noted that while an important function, MITS is a responsibility that rests with the user departments as technical authorities and as such would not longer be offered by PWGSC. PWGSC is ceasing work in technical inspection as of December 2011, while maintaining its accountability as a contracting authority.

70. In light of the wind-down of the program, recommendations to program management are not presented in this evaluation.

## **ABOUT THE EVALUATION**

### **Authority**

The Audit and Evaluation Committee of Public Works and Government Services Canada approved this evaluation as part of the *2009-2010 to 2013-2014 Risk-Based Multi-Year Audit and Evaluation Plan*.

### **Evaluation Objectives**

The evaluation examined Marine Inspection and Technical Services, delivered in the National Capital Area by the Marine Systems Directorate within the Acquisitions Branch; and by Acquisitions Branch in the Atlantic, Quebec, and Pacific regions. The evaluation had two objectives:

- To determine the relevance of MITS: the continued need for MITS, its alignment with governmental priorities and its alignment with federal roles and responsibilities.
- To determine the performance of MITS: the achievement of its expected outcomes and a demonstration of the cost-effectiveness of MITS.

### **Approach**

The evaluation was conducted in accordance with Treasury Board Evaluation Standards and those of the Office of Audit and Evaluation at PWGSC. The evaluation took place between August 2009 and April 2010, and was conducted in three phases: planning, examination and reporting. The evaluation examined MITS' activities over a six year period – FY2004-05 to FY2009-10. To assess the evaluation issues and questions a multiple lines of evidence approach were used.

*Document Review:* Over 70 documents were reviewed to gain an understanding of MITS, its context, current issues and practices. In addition, financial and other types of data were reviewed and the analysis contributed to assessing the success of MITS.

*Literature Review:* A literature review was conducted through the holdings of the PWGSC library. This review provided insight into how the private sector and other countries execute the marine inspection function.

*Project File Review:* A random sample of 10% of projects (102 files) in all regions from 2004-05 to 2009-10 demonstrated the processes followed by MITS for varying degrees of project complexity. This information was used to gain insight into the processes and to conclude on performance

*Interviews:* Gathered the perspectives and opinions of PWGSC personnel (inspectors, managers and contracting officers) and representatives of client departments, as well as

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Transport Canada and National Defence officials. From the private sector, shipyard owners/representatives, members of Classification Societies, and naval architecture firms were interviewed. The interviews focused on the interviewees' level of confidence in the contracting process as a result of inspection and the effect of inspection on compliance. This information was used to gather informed opinions on need, client satisfaction, and efficiency and effectiveness of the services.

*Financial Analysis:* Review and analysis of financial and other data was conducted across regions over the six most recent fiscal years. The number and value of contracts were also included in the analysis. This information was used for comparison of resources in relation to demand.

### **Methodological Limitations**

The document review revealed that departmental planning and performance reports do not always cover the details of Marine Inspection and Technical Services. Although the documentation included historical and mandate-related information some of it was difficult to locate; in particular an Order in Council which formed part of MITS' evolution could not be located.

The review of project files revealed a varied level of detail and approach from project to project and from region to region.

Interviews were conducted in two formats: in person and by telephone. Those in the National Capital, Atlantic (Nova Scotia), and Pacific regions were conducted in person. Time and financial constraints dictated that telephone interviews be held with officials from the Quebec and Atlantic (Newfoundland) regions.

The analysis of financial data did not provide a finite assessment of workload issues. The data included the value of contracts and the numbers of marine vessels serviced, which were used as proxies for the volume of work.

Analysis of performance data was limited to only the information available from the project file review, since MITS does not collect or maintain any formal performance information. Therefore, 'performance data' relates only to a sample of the numbers and types of projects completed per year.

### **Reporting**

Findings were documented in a Director's Draft Report that was internally reviewed by the Office of Audit and Evaluation's quality assessment function. MITS' Director General was provided with the Director's Draft Report and a request to validate facts and comment on the report. A Chief Audit Executive's Draft Report was prepared and provided to the Assistant Deputy Minister, Acquisitions Branch, for acceptance as the Office of Primary Interest. The Draft Final Report was presented to PWGSC's Audit and Evaluation Committee for the Deputy Minister's approval in August 2011. Based on the

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Committee's comments, the revised Draft Final Report was presented in November 2011. The Final Report was submitted to the Treasury Board Secretariat and posted on the PWGSC website.

### **Project Team**

The evaluation was conducted by employees of the Office of Audit and Evaluation, overseen by the Director of Evaluation and under the overall direction of the Chief Audit and Evaluation Executive.

The evaluation was reviewed by the quality assessment function of the Office of Audit and Evaluation, during both the planning and reporting phases.



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**APPENDIX A: EVALUATION MATRIX**

<b>Relevance</b>		
<b>Question</b>	<b>Indicators</b>	<b>Sources/Methodologies</b>
<b>Q1) To what extent is there a continued need for Marine Inspection and Technical Services?</b>	<ul style="list-style-type: none"> <li>• # of ships acquired/refitted/repaired/maintained per year</li> <li>• # of ship construction/refit/repair contracts</li> <li>• planned or expected ship acquisitions</li> <li>• # of ships in the fleet by client department</li> <li>• distribution of age of ships in the fleet</li> <li>• # of non-conformances identified by MI by contract and by year</li> <li>• # of work arisings/contract amendments</li> <li>• # of technical service inspection work requests by client departments</li> <li>• requirements unique to ships not required for air and land vehicles</li> <li>• differences in practices, MITS vs other public and private marine inspection/technical services</li> <li>• procurement services that use inspection / quality control / quality assurance as part of contracting</li> <li>• gaps in technical knowledge of Contracting Authorities</li> <li>• identified risks/international standards of quality assurance</li> <li>• # of instances of outstanding work on acceptance documents (1105 / 1205)</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews</li> <li>• Budgets</li> <li>• Contract reviews</li> <li>• Document/file review</li> <li>• Literature review</li> <li>• Review of operational/performance data (if applicable)</li> </ul>

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<b>Q2) To what extent are Marine Inspection and Technical Services appropriate to the federal government and a core federal role, and linked to a departmental strategic outcome?</b>	<ul style="list-style-type: none"> <li>• evidence of the legislation, official/approved regulations and/or policy authorities for MITS</li> <li>• expressed support for MITS by Central Agencies and government senior management</li> <li>• MITS outcomes vis-à-vis government and departmental priorities</li> <li>• MITS performance outcomes linked to PAA and strategic outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews</li> <li>• Document/file review</li> <li>• Literature review</li> <li>• Review of operational/performance data (if applicable)</li> </ul>
<b>Performance</b>		
<b>Question</b>	<b>Indicators</b>	<b>Sources/Methodologies</b>
<b>Q3) To what extent are Marine Inspection and Technical Services achieving the expected outcomes:</b> <ul style="list-style-type: none"> <li>• <b>Increased confidence of Contracting Authorities and Technical Authorities with respect to issuing and approving the contract</b></li> <li>• <b>Increased confidence of Contracting Authorities and Technical Authorities with respect to contractor's work proceeding according</b></li> </ul>	<ul style="list-style-type: none"> <li>• satisfaction of Contracting Authorities               <ul style="list-style-type: none"> <li>- with respect to advice and recommendations presented by Marine Inspectors</li> <li>- that the progress of work according to contract is effectively monitored</li> <li>- with quality and timeliness of reports submitted by Marine Inspector</li> <li>- in the assessment of the contractibility of specifications and value in contracting</li> <li>- in the alignment of implementation work with the contract</li> <li>- in assurance of contract alignment for progress payments and final payments</li> <li>- in certifying adherence to the Financial Administration Act</li> </ul> </li> <li>• satisfaction of Technical Authorities               <ul style="list-style-type: none"> <li>- with respect to advice and recommendations presented by Marine Inspectors</li> <li>- that the progress of work according to contract is effectively monitored</li> <li>- with quality and timeliness of reports submitted by Marine Inspectors</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Interviews of contracting authorities, inspectors, technical authorities, contractors, and senior government officials</li> <li>• Review of contracts for defects</li> <li>• Non-conformance reports</li> <li>• Review of operational/performance data (if applicable)</li> </ul>

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<p><b>to contract</b></p> <ul style="list-style-type: none"> <li>• <b>Increased compliance by contractors to contract specifications</b></li> <li>• <b>Increased knowledge by client departments?</b></li> </ul>	<ul style="list-style-type: none"> <li>• increased confidence of project managers</li> <li>• increased confidence of Treasury Board</li> <li>• # of defects/deficiencies/non-conformances rectified by contractors</li> <li>• # of penalties paid by contractors for outstanding non-conformances</li> <li>• revenues for technical services exceed costs</li> </ul>	
<p><b>Q4) To what extent does Marine Inspection and Technical Services demonstrate operational efficiency and economy?</b></p>	<ul style="list-style-type: none"> <li>• costs: MITS vs alternate forms of delivery (e.g., Classification Societies)</li> <li>• increases/decreases in requests by client departments (#s and estimated revenue value)</li> <li>• level of duplication by government and private sector; estimated costs of duplication</li> <li>• risk based inspection plans; estimated decreases ;in frequency of inspection</li> <li>• # and length of recorded delays incurred by contractor due to Marine Inspector not adhering to schedule</li> <li>• # and length of recorded delays incurred by contractor due to Marine Inspector not being able to respond because of schedule changes by contractor</li> <li>• % of projects on budget for Major Crown Projects</li> <li>• management tools used to monitor and improve performance</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews of contracting authorities, inspectors, technical authorities, contractors, ship-owners and Classification Societies.</li> <li>• Review of performance data</li> <li>• Review of inspection records</li> <li>• Review of budgets</li> <li>• Review of progress meeting minutes</li> <li>• Review of formal complaints</li> </ul>