

Chapter 31

Fisheries and Oceans

Fleet Management

Table of Contents

	Page
Main Points	31-5
Introduction	31-7
The Department's mandate for the fleet	31-7
The 1990s — a period of change in the fleet	31-8
What the fleet includes	31-8
Focus of the audit	31-9
Observations and Recommendations	31-11
Fleet Mandate, Accountability and Stewardship Reporting	31-11
A clear mandate to operate a fleet	31-11
Organization and accountability	31-12
Key elements in implementing the "client service provider" model	31-12
Program performance expectations are short-term, unclear or unrealistic	31-14
Long-term perspective needed for planning and funding	31-16
Arrangements not documented	31-17
Current method of allocating costs discourages vessel usage	31-17
Inadequate information to monitor and account for fleet performance	31-18
Need to improve stewardship reporting	31-19
The Department's strategic plan — the roadmap forward?	31-19
Vessel Life Cycle Management	31-20
Life cycle management — a government requirement since 1995	31-20
Slow progress in implementing life cycle management	31-20
Assessing and planning fleet requirements	31-21
Accountability for cost-effective fleet operations	31-22
Operating without timely, reliable and integrated information	31-23
Maintenance — the need for a national, fact-based approach	31-24
Costliness of vessels in lay-up status	31-24
Managing the Fleet's Human Resources	31-25
The fleet's single largest operating expense	31-25
Need for a human resource plan	31-26
The impact of human resource issues on operations	31-26
Ensuring that properly skilled personnel are available	31-28
Shore-based support is too large given the current size of the fleet	31-29
Conclusion	31-30
About the Audit	31-31
Exhibits	
31.1 The Fleet as a Client Service Provider	31-7
31.2 Changes in the Fleet Inventory of Vessels, 1990-2000	31-9
31.3 Age Profile of the Fleet of 41 Large Vessels Funded for Future Operations	31-10
31.4 Direct Cost of Providing the Fleet Service	31-10
31.5 Reporting and Accountability Relationships for Fleet Management	31-13
31.6 Mid-Life Refit of the <i>CCGS Cygnus</i>	31-16
31.7 Example of a Cost-Sharing Arrangement in the Newfoundland Region	31-18
31.8 Shore-Based Positions that Directly Support the Fleet	31-25
31.9 Ships' Personnel by Employment Status	31-29



Fisheries and Oceans

Fleet Management

Main Points

31.1 In our opinion, Fisheries and Oceans is not managing its fleet in a cost-effective manner. There is a wide variation in practices and procedures employed by the five regions where the fleet operations are controlled. With each region having its own operating practices, procedures and support, the Department is missing opportunities for greater flexibility in sharing resources and for better productivity in providing the fleet service.

31.2 We observed the following problems in the key management practices that are important to a cost-effective fleet activity:

- The Department has not established clear, concrete, realistic and agreed-upon performance expectations for the fleet.
- The funding horizon has been only one year, even though the fleet is a capital-intensive activity with high fixed costs.
- There is a lack of service accords clearly establishing the performance and funding arrangements between the Department's programs and the fleet.
- Internal budgetary processes do not support accountability for the fleet activity.
- Information systems are not integrated and do not provide managers with reliable, timely information on performance and cost.
- The method of allocating costs to programs discourages vessel use.
- The fleet does not employ a life cycle approach to managing its vessels.
- The fleet is not adequately managing its single largest operating expenditure, its human resources.
- Shore-based support is too large, given the current size of the fleet.
- There are weaknesses in stewardship reporting to Parliament.

31.3 As the Department addresses these issues in an order of priority (they cannot all be addressed at once), it also needs to consider a longer-term strategy to renew its aging fleet. Such a strategy would need to take into consideration the changing nature of program requirements, the impact of technological change and the potential for alternative means of acquiring the services needed.

Background and other observations

31.4 At 31 March 2000, the fleet consisted of 144 vessels (122 were operational for some period during 1999–2000), including vessels as small as an 8-metre multi-tasked utility vessel to a 111-metre heavy gulf icebreaker. The fleet plays a key role in providing services such as aids to navigation, icebreaking, the marine component of search and rescue, and marine pollution prevention and response. It also supports the Department in the conduct of fisheries science and enforcement, hydrography, oceanography and other marine sciences.

31.5 In 1999–2000, Fisheries and Oceans spent approximately \$229 million for operations, maintenance and capital replacement of the fleet. In addition, an estimated \$52 million was spent on shore-based support.

31.6 The fleet's human resources are its single largest operating expense. At 1 April 2000, there were 756 officers and 1,308 crew assigned to vessels, although the number of people varies during the year depending on seasonal requirements. In addition, we estimate conservatively that there are about 447 full-time-equivalent shore-based positions that provide direct support to the fleet and about 55 positions associated with the Canadian Coast Guard College that provide training support directly to the fleet.

31.7 Our audit focussed on the 47 large vessels that operated for some period during 1999–2000, vessels in lay-up status, and the sea- and shore-based people directly involved in managing and operating the fleet. The large vessels annually incur between 70 and 80 percent of the operating costs of the fleet.

31.8 Since 1994, the fleet has had to deal with significant fiscal restraint, the merger of the former Transport Canada Coast Guard fleet with the science and fisheries enforcement fleets of Fisheries and Oceans (1995), and further fiscal restraint associated with the merger (1996 to the present). We had expected to find some management issues, given the amount of change the fleet has undergone; however, we are concerned about the number and seriousness of the issues we found. We believe that the resolution of these issues requires management's prompt action.

31.9 While the issues raised in this chapter are considerable and represent a challenge to management, the Department deserves credit for several initiatives that are important to the delivery of the fleet activity. Most notable is the ongoing implementation of the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code). Also, during 1999–2000, program and fleet managers identified the existing vessels that could be afforded, within available funding, while providing the best possible service. This exercise did not address the problems we identified above; however, it could bring some stability to the environment in which the fleet operates.

The Department's overall response to this chapter follows paragraph 31.139. Fisheries and Oceans accepts our findings and indicates that a study is under way to develop strategic options for fleet management. Following completion of the study, the Department intends to develop an action plan addressing seven specific areas that encompass the issues we have identified.

Introduction

The Department’s mandate for the fleet

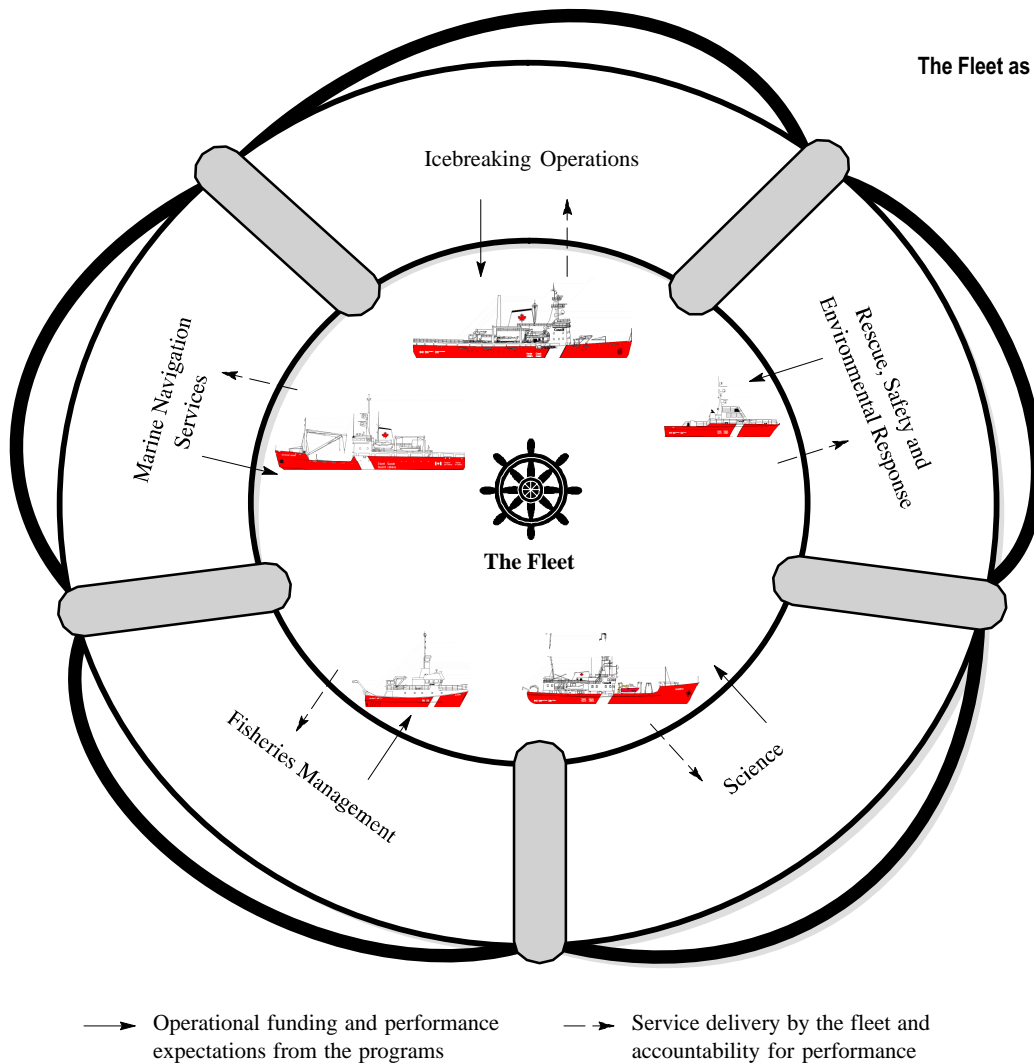
31.10 The *Oceans Act* makes the Minister of Fisheries and Oceans responsible for providing a coast guard service, including aids to navigation, icebreaking, the marine component of search and rescue, and marine pollution prevention and response. In addition, the *Oceans Act* authorizes the Minister to maintain and operate ships for the purpose of conducting fisheries science, hydrography, oceanography and other marine sciences. The *Fisheries Act* and

the *Coastal Fisheries Protection Act* provide for the Department to have a presence on the oceans for fisheries management purposes. To help provide these services, the Department operates a fleet of vessels.

31.11 The fleet is a “client service provider” for the Department’s programs, which in turn provide service to other internal and external users (see Exhibit 31.1). The costs of vessel operations and crewing are charged to these programs or business lines (the internal users pay for direct operational costs). The costs of fleet shore-based staff,

Exhibit 31.1

The Fleet as a Client Service Provider



The 1990s was a period of significant change for the fleet.

capital acquisitions and maintenance of vessels are reported as a separate business line — fleet management.

31.12 The fleet also provides support to other government departments and agencies, and to other governments and international organizations. However, it is not regularly funded for such activities. In addition, the fleet helps to assert Canada's sovereignty in the Arctic through its icebreaking.

The 1990s — a period of change in the fleet

31.13 Since our last audit of the Canadian Coast Guard fleet in 1989, there have been many changes. The fleet has been the subject of studies and reviews, the Coast Guard has merged with Fisheries and Oceans, and funding has been greatly reduced.

31.14 In 1990, the government received a report on an independent review of all government fleet activity, including the two largest civilian fleets, the Coast Guard — then a part of Transport Canada — and the Fisheries and Oceans fleet. Some key recommendations of this review were that the government should:

- continue to maintain separate fleets;
- establish an interdepartmental committee for program co-ordination and review to improve vessel utilization; and
- charge service recipients according to the incremental cost of use.

31.15 In 1994, funding of both the Coast Guard and Fisheries and Oceans was significantly reduced through Program Review. In 1995, the Coast Guard was merged with Fisheries and Oceans, making the latter responsible for managing the Government of Canada's largest civilian fleet.

31.16 The post-merger period created significant challenges in bringing together two fleets that operated differently and

had different corporate cultures. Further reductions in funding were approved based on anticipated savings from the merger.

31.17 Most recently, on 3 April 2000, the Coast Guard headquarters, including marine programs and fleet management, was reorganized. The objectives of the reorganization were to improve service to the regions, eliminate overlap between the Coast Guard and the rest of the Department's headquarters, and finalize the organizational structure to facilitate staffing on an indeterminate basis.

What the fleet includes

31.18 There is not just a single national Fisheries and Oceans fleet; fleet operations are very decentralized. While fleet headquarters issues guidance and directions on standards and policy, each region operates according to its own practices and management preferences. Each region deploys, maintains and operates the vessels assigned to it.

31.19 At 31 March 2000, the fleet consisted of 144 vessels (122 of which operated for some period in 1999–2000). Vessels range from an 8-metre multi-tasked utility vessel to a 111-metre heavy gulf icebreaker. This current audit was directed at only the 47 large vessels that operated for some period during 1999–2000 and those vessels in lay-up (non-operational) status. The large vessels annually incur between 70 and 80 percent of the fleet's operating costs. Most of the smaller vessels are primarily single-purpose search and rescue lifeboats, and they operate in quite a different way from the rest of the fleet. In addition, most of the Department's programs operate boats measuring under eight metres. These boats are not considered part of the fleet and were not included in the scope of this audit.

31.20 In 1990, the Coast Guard and Fisheries and Oceans fleets had a combined total of 198 vessels. The Department has just completed a "Base

Fleet” exercise, which recommended that only 108 of the remaining 144 vessels be funded to operate annually. Forty-one of the 108 vessels are considered large.

Those not funded will be held in lay-up status or decommissioned and eventually sold. Exhibit 31.2 summarizes the changes in the inventory of vessels since 1990.

31.21 The average age of the 41 large vessels funded for future operations is 22 years. Given that the Department considers 30 years to be the effective useful life of its vessels, the existing asset base is growing old; many classes of vessels are nearing the end of their useful lives. With its vessels aging at a time when capital funds are not readily available, the Department is confronted with a serious challenge — its ability to renew its fleet and provide the services its programs require. In 1999, the Department estimated that the replacement cost of all of the large vessels was \$2.2 billion. Furthermore, the Department has stated that the increased cost of operating and maintaining old vessels reduces the amount of funding that it could use to provide additional service to departmental programs. Exhibit 31.3 shows the age of the 41 large vessels in the fleet that are to be funded for future operations. Certain classes of vessels are aging together; all

5 of the ice-strengthened navigational aids tenders, 3 of 11 icebreaking navigational aids tenders and 1 of the 5 icebreakers are over 30 years old.

31.22 For the year ended 31 March 2000, the Department estimated that the direct cost of providing the fleet service was \$281 million (see Exhibit 31.4).

31.23 In support of the fleet, the Department also incurs indirect costs for finance, personnel and other administrative and technical support.

Focus of the audit

31.24 Our audit focussed on the management of the 47 large vessels that operated for some period during 1999–2000, vessels in lay-up status, and the sea- and shore-based staff directly involved in managing and operating the fleet. This included an examination of the clarity of the mandate for the fleet, the Department’s method of determining the nature and level of service expected, and accountability relationships involved in delivering the service. We excluded the supply system and the management of the shore-based infrastructure such as wharves.

31.25 Our objective was to assess the extent to which the fleet has provided cost-effective support service to the

Exhibit 31.2

Changes in the Fleet Inventory of Vessels, 1990–2000

	1990	1994	1996	2000	
Pre-Merger Department	Inventory	Inventory	Post-Merger Total Inventory	Base Fleet Funded Vessels	Base Fleet Total Inventory
Canadian Coast Guard ⁽¹⁾	93	91	88	74	90
Fisheries and Oceans ⁽²⁾	105	79	81	34	54
Total	198	170	169	108	144

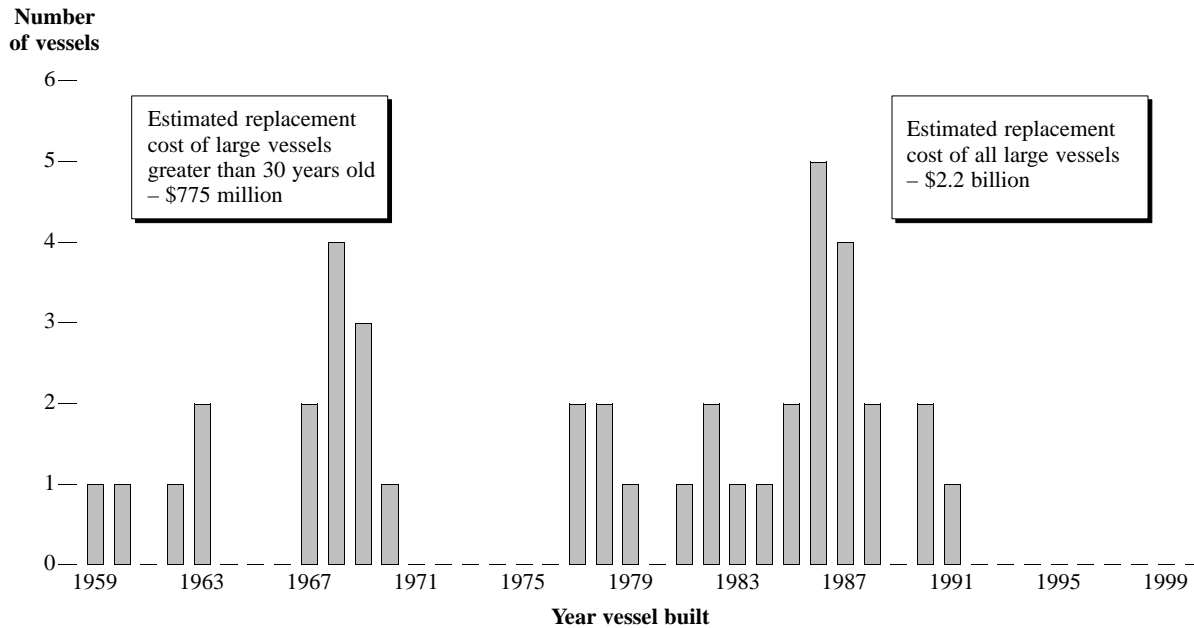
(1) Post-merger split shows vessels primarily tasked to support the marine programs.

(2) Post-merger split shows vessels primarily tasked to support science and fisheries enforcement.

Source: Fisheries and Oceans

Exhibit 31.3

Age Profile of the Fleet of 41 Large Vessels Funded for Future Operations



Source: Fisheries and Oceans

Exhibit 31.4

Direct Cost of Providing the Fleet Service

Year Ended 31 March 2000 (\$ millions)

Vessel costs	
Salaries	\$ 108
Contributions to employee benefit programs*	22
Operating	<u>35</u>
Vessel costs allocated to the programs	165
Capital acquisitions	39
Maintenance and refit	<u>25</u>
	229
Shore-based support costs	
Salaries	28
Contributions to employee benefit programs*	6
Operating	<u>18</u>
	52
Direct cost of the service	<u>\$ 281</u>

Source: Fisheries and Oceans

* Estimated at 20 percent of salaries

Department’s programs and those of other government departments. We did not audit the delivery of the Department’s programs, including its marine programs.

Observations and Recommendations

Fleet Mandate, Accountability and Stewardship Reporting

A clear mandate to operate a fleet

31.26 The Department’s mandate to operate and maintain a fleet of vessels to

support the delivery of its programs is laid out in the *Oceans Act*. In addition, the *Fisheries Act* and the *Coastal Fisheries Protection Act* provide for the Department to have a presence on the oceans for fisheries management purposes. The fleet supports all the Department’s priorities, including managing and protecting fisheries resources, protecting the marine and freshwater environment, understanding oceans and aquatic resources, maintaining maritime safety, and facilitating maritime commerce and ocean development. The *Oceans Act* also requires the Minister of Fisheries and Oceans to ensure that services to achieve the “safe, economical and efficient

Examples of the types of large vessels that operated in 1999–2000 (see paragraph 31.24).

CCGS Des Groseilliers: Medium Gulf and River Icebreaker



CCGS Dumit: Special River Navigational Aids Tender



CCGS Martha L. Black: Major Navigational Aids Tender



CCGS Cape Roger: Multi-Task Patrol Vessel



CCGS Teleost: Science Research and Survey Vessel

Source: Fisheries and Oceans

Reporting relationships are complex.

movement of ships in Canadian waters” are provided in a cost-effective manner.

Organization and accountability

31.27 Under the Department’s matrix management model, the fleet is not a stand-alone organization within the Department. The fleet’s operations in each region report directly to one of five regional directors general. They have a functional reporting relationship to the Commissioner of the Coast Guard on national policy matters and are also expected to consult and collaborate with the Commissioner on resourcing and performance. Both the Commissioner and the regional directors general report directly to the Deputy Minister. Exhibit 31.5 shows this complex reporting relationship.

31.28 The Commissioner is responsible for setting national objectives, policies, standards and procedures while monitoring the performance of the fleet operations in the regions, and also for all capital acquisition decisions and major refits. As the Assistant Deputy Minister, Marine, the Commissioner also has functional responsibilities for the marine programs (marine navigation services, marine communications and traffic services, icebreaking operations and rescue, safety and environmental response). Consequently, the Commissioner has direct authority and responsibility for fleet headquarters but no direct authority over the operations of vessels in the fleet.

31.29 The regional fleet operations are responsible for organizing and managing the delivery of activities in each region according to national and regional program priorities and within national performance parameters. Regional directors general, through the Coast Guard’s regional directors, have direct authority and responsibility for vessel operations. They are accountable for organizing and managing the resources

assigned to the region in accordance with assigned authorities, performance standards and results agreed to with the respective assistant deputy ministers (including the Commissioner).

31.30 The fleet’s clients — the programs — are organized in a similar manner to the fleet (that is, regional directors general are responsible for program delivery while assistant deputy ministers set national priorities and performance expectations). Therefore, for any one program serviced by the fleet, there will be a number of players at headquarters or in the regions, using, providing or supporting services.

Key elements in implementing the “client service provider” model

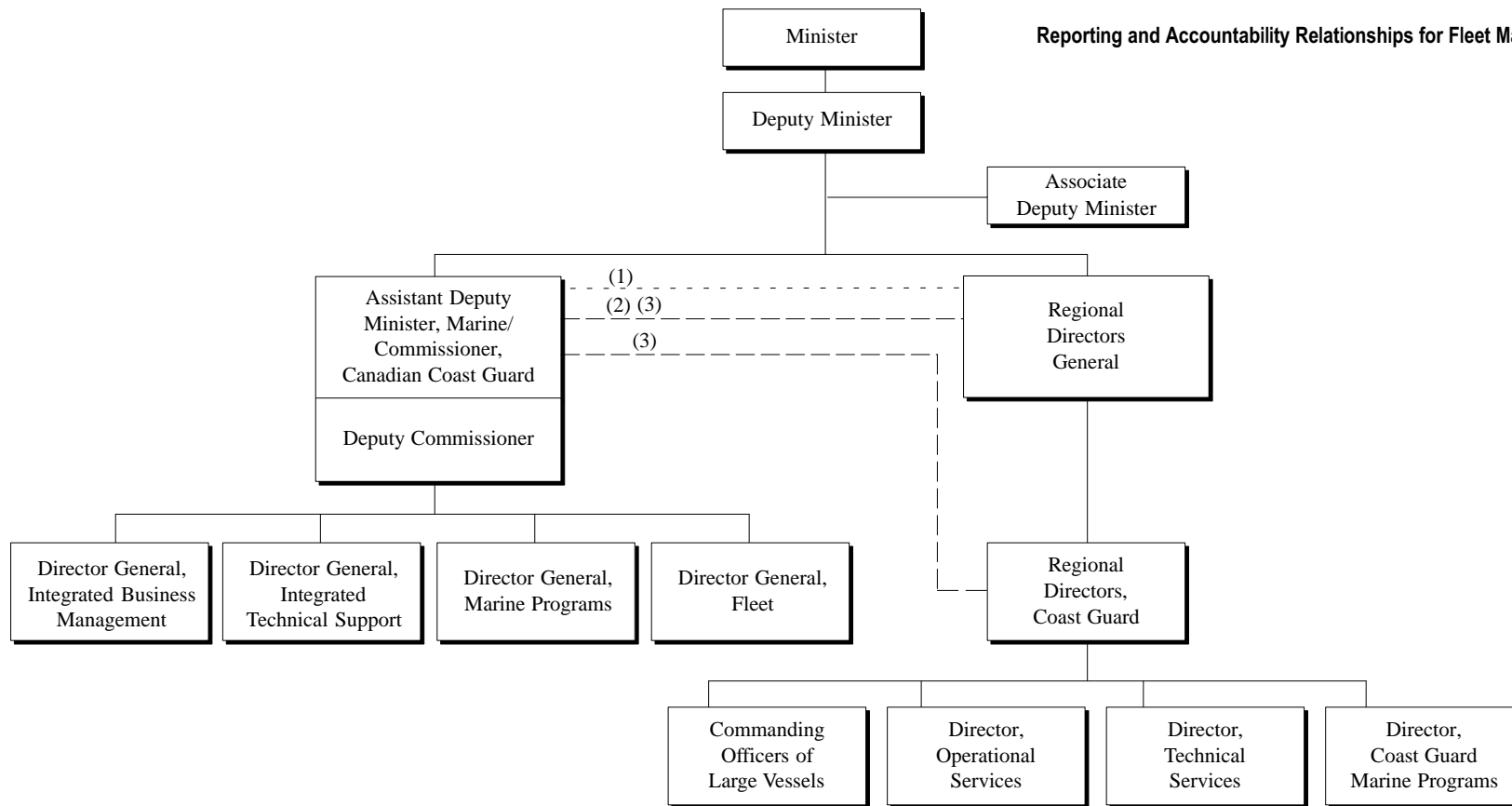
31.31 The Department manages the fleet through a “client service provider” model, in which the direct operating costs of vessels and crews are allocated to the programs that are recipients of the service. The large vessels of the fleet are generally used as multi-tasked platforms (that is, they can service the needs of more than one program). The client service provider model can allow for a form of internal accountability similar to that in a commercial arrangement (there is a type of internal market test of the service, although the capital, refit and maintenance costs of the vessels are not considered). Besides operating in a complex organization, the fleet is capital-intensive, with a high percentage of fixed annual costs (costs that cannot be avoided over the short term).

31.32 To work effectively, the client service provider model requires the following key elements:

- clear, concrete, realistic and agreed-upon performance expectations;
- long-term planning and funding to carry out the requested service;
- clear documentation of arrangements between the user and the provider;

Exhibit 31.5

Reporting and Accountability Relationships for Fleet Management



- 1 The Commissioner, in consultation with regional directors general, suggests resource allocation to regions based on regionally costed operational plans.
- 2 The Commissioner, in collaboration with regional directors general, establishes a system to monitor performance and report on results.
- 3 The Commissioner provides functional direction to regional directors general (and regional directors) regarding the national policy framework and national standards.

Source: Fisheries and Oceans

Program performance expectations are short-term, unclear or unrealistic.

- fleet costing policies and practices that encourage the use of the lowest-cost alternative to acquire service while meeting departmental objectives; and
- information systems and practices to monitor and account for actual performance of the fleet in terms of service and cost.

31.33 As noted in the following sections, we found that many of these key elements are weak or missing.

Program performance expectations are short-term, unclear or unrealistic

31.34 In order to achieve a program's expected outcome, fleet managers must know what service and how much service they are expected to provide with the funds allocated by program managers. These expectations must be clearly identified, concrete, realistic and agreed-upon by user and provider, and performance must be monitored and reported. However, we found that performance expectations are often short-term, unclear or unrealistic given the funding that programs have available or given the configuration and capabilities of the existing fleet. In addition, where there are short-term expectations for the fleet, they cannot be linked to the program's ultimate expectations, as the latter often are not articulated. We reviewed the stated performance expectations of the key users of the fleet.

31.35 Offshore search and rescue. Canada's responsibility for offshore search and rescue is defined within zones off our coasts. In 1993, the search and rescue program developed national level-of-service requirements that specified the type of vessel and equipment required for offshore search and rescue. The requirements also set out the need to have trained search and rescue specialists aboard any vessel responsible for offshore search and rescue. However, none of the Department's vessels have all of the

essentials specified in the national level-of-service requirements. Some vessels do not carry the search and rescue equipment specified as required. Some vessels do not have appropriately trained rescue specialists aboard. The standard requires that vessels be deployed at sea within the offshore zone when assigned to primary search and rescue duties. Yet we found that vessels are often tied to the wharf while they are in offshore search and rescue status.

31.36 The Department does not measure all of the gaps in the search and rescue coverage. Where it does measure them, we noted inconsistencies in the measurement approach. Some regions, Newfoundland for example, reported a gap in coverage when the primary search and rescue vessel left the zone, although one or more fleet vessels still operated in the zone. Other regions, like Pacific, considered that fleet vessels performing other tasks in the zone were also covering search and rescue requirements. Inconsistencies in the way that gaps in coverage are measured make meaningful analysis difficult. The Department does not publicly report the extent of these shortfalls, the reasons for them, or their impact on marine safety. The Department has informed us that it does not believe that offshore marine safety has been negatively affected by these shortfalls.

31.37 Icebreaking. The level-of-service requirements for icebreaking specify which vessels are needed and when. The Icebreaking program held consultations with user groups and then developed a specific schedule for all vessels assigned to the Arctic and southern icebreaking operations. Essentially, the exercise determined the number, type and availability of vessels that the Department could afford for icebreaking duties. While this consensus building has strengthened the planning process, it does not provide

assurance to users that their expectations will be met.

31.38 Marine Navigation Services.

The Marine Navigation Services program uses navigational aids tenders to place, service and repair fixed and floating navigational aids. Based on international commitments made by Canada, the program has an overall performance target for existing navigational aids of 99 percent operational reliability. In efforts to reduce costs, the program has introduced many changes to the navigational aids and the way they are maintained. All of these changes were designed to reduce the frequency of visits by fleet vessels to maintain navigational aids. Unfortunately, not all of these changes have worked out as planned; the fleet is called upon to visit these aids more frequently than anticipated. However, funding has already been reduced based on the anticipated savings from this new approach.

31.39 The Department recently carried out a study of the five types of aids that are used year-round. The study found that three types met the standard for reliability. Lighted floating aids and fixed aids whose lights operate 24 hours a day did not meet the standard. We noted during this audit that certain navigational aids in certain geographical areas are less reliable than others. The Department is currently assessing the implications of these results, but has yet to determine their impact on vessel use.

31.40 Science. The Science program annually determines its number of sea-days by estimating the number of days it can “buy” with the funds available for the year and the research vessels it traditionally has available for its work. There is some imprecision in this process because, during the year, some regions revise the estimated cost of providing the service. These revisions can be due to departures from the initial plan (for example, the use of higher-cost vessels

than planned) or to higher operating costs than originally estimated by the fleet.

31.41 For the longer term, the Science program provided the fleet with a report entitled “2005 Science Strategic Plan Platforms”, dated October 1998. This was a high-level summary of the program’s need for support and some of the challenges it faces, given the fleet’s current capabilities. The report also summarized vessel capabilities and provided potential scenarios for the replacement or modification of vessels.

31.42 While the Science program has provided more long-term information on its needs than other programs, we still noted areas for improvement. For example, the Science program is reassessing the Department’s role in Arctic science. At this point, the Department does not engage in significant amounts of Arctic science. The program has not told the fleet how many days it potentially will need icebreakers. In addition, the icebreakers may have to be modified for this work. Another example is the upcoming need for support from the fleet for the Department’s Oceans Strategy. The program has not yet informed the fleet of the strategy’s implications for vessel requirements. Under the existing planning process, programs tell the fleet their exact requirements only after funding for new initiatives is approved. However, this does not always allow the fleet sufficient time to put in place the necessary vessels and crews to support the initiatives.

31.43 Fisheries Management. The enforcement requirements of the Fisheries Management program are communicated to the fleet on an annual basis only. Other departmental programs reduced the fleet services they requested by percentages similar to the funding reductions for the overall program; however, budget cuts in fisheries management were achieved almost entirely by reducing the number of fisheries enforcement vessels operated by the Department. Since 1995, the

A long-term perspective is needed for planning and funding.

Department has removed or is considering removing from service 29 fisheries enforcement vessels, leaving only 11 dedicated fisheries patrol vessels. While fisheries management is not willing to commit funding to the fleet, it expects the support of the fleet when situations arise such as the recent East Coast Aboriginal fishing dispute. Exhibit 31.6 illustrates the uncertainty faced by the fleet in planning for the fisheries enforcement vessel *CCGS Cygnus*.

Long-term perspective needed for planning and funding

31.44 The programs currently fund fleet operations annually. However, the Department is considering moving to a three-year planning period for the fleet. The fleet's vessels have a long life expectancy and are expensive and time-consuming to replace. The single largest operating expense for the fleet is the cost of crewing its vessels. Under existing collective agreements, any reductions in personnel require notification well in advance. Therefore, it is difficult for fleet managers to adjust to sudden shifts in program plans and funding.

31.45 Annual planning and funding process. The process to plan for the next fiscal year begins every fall, when each region's fleet operations group requests each program to indicate the amount and timing of sea-days it needs.

31.46 Based on that information, the regional fleet operations group develops an operating schedule. This preliminary schedule highlights any conflicts or gaps, which are then resolved through negotiations with program managers. The draft schedule is then costed by the fleet's MariTime fleet management system.

31.47 Next, the regional fleet plans are reviewed and amalgamated at national headquarters. The Departmental Management Committee approves the plans. Regional directors general are delegated budgets for marine programs, science, and fisheries management that include a component for funding the fleet. However, the amounts delegated for fleet operations may not reflect the cost projections made in the fleet planning process. For example, in 1999–2000 the funding allocated for fleet operations was \$21.4 million less than the estimated cost of implementing the regional plans. This shortfall was made up through "temporary" allocations from the Deputy

Exhibit 31.6

Mid-Life Refit of the CCGS Cygnus

The *CCGS Cygnus* is a 62-metre offshore multi-task patrol vessel that operates primarily as a fisheries enforcement vessel. In 1995, the fleet proposed carrying out a mid-life refit of the *CCGS Cygnus* to extend its useful life to approximately 2017. With the Department undergoing funding reductions at the time, the fleet sought to confirm that the *CCGS Cygnus* fit into the long-term plans for fisheries management. Prior to planning the refit, the Maritimes Region confirmed that the *CCGS Cygnus* would be an essential part of the Region's fisheries management strategy. On 24 March 1997, the Deputy Minister approved the project for an amount not to exceed \$10 million.

The refit of the *CCGS Cygnus* ultimately cost \$11.3 million and was completed by December 1998. However, shortly after the *CCGS Cygnus* came back into service, fisheries management priorities changed from offshore to nearshore fisheries; also, the Region had insufficient budget to operate the *CCGS Cygnus*.

The Base Fleet exercise left the *CCGS Cygnus* without funding. Although the *CCGS Cygnus* was not funded, fisheries management provided temporary funding so that the *CCGS Cygnus* could provide support to fisheries enforcement during the recent disputes over Aboriginal fisheries issues. A final decision about the status of the *CCGS Cygnus* is on hold while this temporary funding is available.

This case is a good example of the impact that uncertainty in program expectations and funding can have on the cost-effectiveness of the fleet.

Minister's reserve funds and a reallocation from minor capital funding. Further, we found that it was not possible to trace budgetary amounts transferred to regions to ensure that they were, in fact, spent on fleet activities. This was because the regional directors general and Coast Guard regional directors have authority to reallocate funds intended for the fleet to other regional priorities.

31.48 Fisheries management and science managers have been dubious about the process used to fund the fleet for their activities. Indeed, regional managers have withheld funding until they were satisfied with the number of sea-days they would receive. We noted examples, in 1999–2000, where fleet operations had not received regional science budget transfers until August 1999 — five months into the fiscal year. By that time, most of the science fleet activity for the year had already been completed. However, we also noted examples at the regional level where the Coast Guard has absorbed the cost of services provided to fisheries management and science within its own marine programs.

31.49 The Department's processes for funding fleet operations are flawed. Budgets are not known by or allocated to regions until several months into the fiscal year. Annual plans are not achievable with the funds provided. Consequently, fleet managers must operate in an environment of financial uncertainty and must frequently adjust their plans on the basis of perceived risk and availability of cash. The one-year planning and funding horizon does not recognize fleet managers' limited flexibility to adjust costs in the short term.

31.50 Furthermore, the fleet funding process is time-consuming for both fleet and program managers. The process has been divisive, pitting programs against the fleet and region against region. Budget cuts have placed further stress on this unstable environment. The result has been

funding decisions that fail to reflect both the expected performance outcomes of the programs and the reliable estimates of the cost of providing services, over either the short or the long term.

Arrangements not documented

31.51 The arrangements between the programs and the fleet are not formally documented in a service accord or contract that would provide for accountability between the user and the provider. Such arrangements are called for under the Department's management model and would help to ensure that service and funding commitments are met.

31.52 As Assistant Deputy Minister, Marine, the Commissioner of the Coast Guard is both the service provider and the client. In 1999–2000, the marine programs represented about 65 percent of the fleet activity nationally. A 1995 consulting study prepared for the Department noted:

This blurring of roles appears to lead to a less clear definition of the "user needs" and a tendency to deploy assets so they have something to do, rather than deploying vessels in strict accordance with user needs.

[Canadian Coast Guard] vessels do not appear to be client driven.

Current method of allocating costs discourages vessel usage

31.53 Vessel operating and crewing costs are allocated to programs based on the programs' proportionate use of each vessel. For example, if a vessel were used 60 percent for tending navigational aids and 40 percent for icebreaking, its total operating and crewing costs would be allocated to the programs based on those percentages. On the surface, this appears to be a reasonable basis for allocating costs.

31.54 According to the Department's management model, assets and resources are first and foremost departmental — to be used in the most cost-effective manner possible to achieve departmental

The costing methodology does not support the multi-tasking strategy.

objectives. To accomplish this objective, the Department has stressed higher use of vessels through multi-tasking. Under this strategy, a vessel can be assigned to complete tasks under any of the Department's programs as long as the vessel is capable of conducting the task. However, because no one vessel may be ideally suited to meet the needs of all of the programs, the current method of allocating costs may result in a program being allocated costs for a capability that it does not need.

31.55 We observed instances where program managers refused to use available vessels, as they did not want to incur the allocated costs of vessels, which they think are too high given the service provided. However, while a program may avoid being charged the cost of a vessel, the Department continues to absorb all of the fixed costs and, in the end, may have an underutilized vessel. Thus, the costing methodology used for the fleet activity does not support the multi-tasking strategy.

31.56 We also observed instances where regional fleet managers agreed to provide services to programs at less than the usual allocated cost. However, the Department's operational and financial systems and costing practices do not currently provide for such arrangements.

In the end, the program is charged the usual allocated cost of the vessel despite the agreed-upon arrangement. Such misunderstandings have affected the working relationships between the fleet and its users. Exhibit 31.7 describes a cost-sharing arrangement established by the Newfoundland Region.

31.57 We noted that departmental managers spent significant amounts of time disputing or trying to understand allocations of fleet time and costs. In many instances, they disagreed over relatively small amounts. In our opinion, this wasted effort is at least partly attributable to a costing methodology that does not support departmental objectives or encourage vessel use at the lowest cost to the Department.

Inadequate information to monitor and account for fleet performance

31.58 We expected that the fleet would have the information necessary to monitor and account for its actual performance in terms of service and cost. However, we found that this kind of information is generally not available.

31.59 We identified the following problems:

- Fleet information is maintained in many departmental systems that are not integrated.

Exhibit 31.7

Example of a Cost-Sharing Arrangement in the Newfoundland Region

In the Newfoundland Region, the fleet proposed an arrangement whereby it would provide fisheries enforcement support at the same time that it was conducting offshore search and rescue. The Newfoundland fisheries were concentrated in areas 20 to over 200 miles offshore, yet there was little fisheries enforcement in that area. Since most of the search and rescue risks revolved around the fishery, such an arrangement was a good example of the effectiveness of the Department's multi-tasking strategy.

The fleet proposed to take the remaining fisheries enforcement budget of \$250,000 and provide a minimum of 130 fisheries enforcement sea-days. The cost to fisheries enforcement was about \$1,900 per day — only 25 percent of the cost of the vessel that was to have provided the largest portion of the service. In the end, the fleet provided about 136 multi-tasked sea-days to fisheries enforcement.

Although the arrangement had called for fisheries enforcement to be charged only \$250,000, it was actually charged about \$630,000. The Department's cost accounting methodology provides only for the allocation of costs based on the program's proportionate use of the vessel.

- Most fleet performance information is not available until four to five months after year-end.
- Information systems often provide conflicting results.
- Information is not available that compares budget amounts transferred to the fleet with the actual cost of the service.

31.60 The objective of the government's Financial Information Strategy (FIS) is to provide managers, Parliament and the public with more relevant, reliable and timely financial information for government activities and program performance. It is also intended to integrate operational information with financial information. Our audit raised the types of management issues that FIS is designed to deal with. The Department has informed us that the basic elements of FIS should be implemented by the 1 April 2001 deadline. However, full integration of financial and operational information is still several years away.

Need to improve stewardship reporting

31.61 In its reports to Parliament, the Department identifies fleet management as a separate business line. However, under this business line the Department reports only the costs of the shore-based staff and operations, capital acquisitions, refit and maintenance. The sea-based costs of vessels — including salaries and operating costs — are allocated to the other business lines that the fleet supports. In its 2000–01 Report on Plans and Priorities, the Department clarified for the first time this approach to reporting fleet costs.

31.62 The Department's method of allocating fleet costs to the other business lines is not reliable. We found problems with the processes used to accumulate and allocate the sea-based costs of vessels. This unreliable information is included in the Department's Performance Report.

The accountability process set out in the Performance Report is called into question because the explanations for variances between actual and budgeted expenditures are based on unreliable, reported actual expenditures.

31.63 Although the Department knows that the fleet is unable to meet even some of the most basic service expectations, it has not made a consistent attempt to either track or disclose the nature and extent of these gaps in service.

The Department's strategic plan — the roadmap forward?

31.64 The Department's March 2000 Strategic Plan is a forward-looking document that highlights the need for, among other things, mandate renewal and a focus on organizational effectiveness. We believe that our observations about the organizational structure and accountability relationships of the fleet and the supporting management processes are consistent with issues identified in the Strategic Plan.

31.65 Uncertainty, financial restraint and shifting expectations have greatly impacted the Department's programs and, specifically, the fleet activity. The Strategic Plan states:

In recent years, the pressures of changing program demands, increased public awareness and technological advancement have led to dramatic shifts in [Fisheries and Oceans'] operating environment. Focusing exclusively on cost cutting without understanding the underlying policy implications can lead to ad hoc decision-making and ultimately to organizational ineffectiveness.

31.66 Clearly this section of the Strategic Plan could apply to the Department's fleet activities.

31.67 Summary. Key elements necessary to manage the fleet cost-effectively are not in place. These elements are important to the success of

Key elements necessary to manage the fleet cost-effectively are not in place.

the Department's management model and the fleet's role as a service provider.

31.68 In our view, there is a need to focus more clearly on determining expected outcomes of programs. These outcomes must be translated into specific performance measures and goals. With an increased focus on program results, the programs can be more specific in requesting support from the fleet.

31.69 The use of short-term funding results in instability and uncertainty for the fleet. Managers of a capital-intensive program with high fixed costs are hard pressed to make good management decisions in the face of such uncertainty. In order for the fleet to provide a cost-effective service, fleet managers must receive assurance of funding and the expected level of service for a longer period than the current one-year planning horizon. While the three-year planning horizon the Department is considering would be an improvement, a five-year horizon would fit more closely with the capital planning process of the fleet.

31.70 Information necessary to monitor and account for the fleet's actual performance, in terms of service and cost, is not available. The current method of allocating costs to the programs discourages their use of vessels.

31.71 In the end, we are left to question how anyone in the Department can be held accountable for the cost-effective delivery of the fleet service. While we believe that fleet managers and program managers understand their respective roles within the management model, both are equally frustrated over their inability to make the arrangement work satisfactorily.

31.72 **The Department should review how the fleet fits into its current organizational and accountability structure and take measures to ensure that the fleet can operate in a cost-effective manner.**

31.73 **The Department should address the weaknesses associated with its key fleet management processes, including:**

- **establishing clear, concrete and realistic program performance expectations that include a long-term perspective;**
- **establishing a long-term fleet planning and funding horizon;**
- **developing service accords between the programs and the fleet;**
- **establishing budgetary processes that support accountability;**
- **setting up integrated information systems to enable the Department to monitor and account for the actual performance of the fleet in terms of service and cost; and**
- **implementing costing policies that support the use of the lowest-cost alternative in acquiring service while meeting departmental objectives.**

Vessel Life Cycle Management

Life cycle management — a government requirement since 1995

31.74 In 1995, the government issued its policy on materiel management, requiring departments to manage their materiel resources, including vessels, using a life cycle approach. The policy states that when planning, acquiring, using and disposing of assets, departmental operating requirements should be met and value for money achieved. Essentially, life cycle management is used to manage the total cost of ownership of an asset over its lifetime.

Slow progress in implementing life cycle management

31.75 The fleet's policies and procedures for life cycle management have been under development since 1998. A manual has been produced that suggests best practices for the refit and

maintenance of vessels. However, the Department's most optimistic date for complete implementation is 2005.

Although there is still no formal life cycle approach in place, we examined how the fleet manages the major stages of the life cycle.

Assessing and planning fleet requirements

31.76 The “Base Fleet.” During 1999–2000, the Department undertook an extensive exercise to determine the number of vessels the fleet needed to meet essential program requirements. The “Base Fleet” exercise resulted in a recommendation that 108 vessels be funded for operations during 2000–01. Thirty-six other vessels would be held in lay-up status for future use or would be decommissioned and sold.

31.77 The “Base Fleet” exercise had a positive impact in that both the programs and the fleet spent considerable time balancing known ongoing requirements with the capabilities of the fleet's existing vessels. The exercise will be important to fleet managers because it will provide the basis for future cost-saving decisions in areas such as crewing and disposal of vessels.

31.78 Because the “Base Fleet” exercise focussed largely on the program requirements of individual regions, the Department did not achieve the potential efficiencies it might have gained through a better matching of national requirements to available vessels. By subdividing the fleet into five distinct regional units, each with its own operating processes, procedures and support, the Department has missed opportunities for greater sharing of resources and for better productivity in providing the service. For example, due to lack of funding, in 1999–2000 the Maritimes Region did not operate the 14-year-old *CCGS Edward Cornwallis*, an icebreaking navigational aids tender. At the same time, the

Newfoundland Region was operating two icebreaking navigational aids tenders far older at 41 and 33 years.

31.79 Several of the regions stated that the final approved “Base Fleet” plan does not meet their regional operating requirements. These regions have continued to lobby internally for either more funding or the reallocation of vessels to their region. The final “Base Fleet” plan still forecasts a current-year shortfall in program funding of \$14.3 million and gaps in the fleet's capability to meet ongoing program requirements.

31.80 Long-term capital planning. In June 2000, the Treasury Board approved the Department's Long-Term Capital Plan. We reviewed the fleet component of the new plan and the processes supporting its development. According to the Department, there has not been a fleet capital plan since 1987 for the former fisheries and science fleets or for the Coast Guard fleet.

31.81 From the fleet's perspective, the Department's Long-Term Capital Plan does not represent a realistic or true picture of the fleet's long-term capital needs. We base this conclusion on the following observations:

- The long-term program requirements have not been clearly established. Changes in technology or approach (for example, modernization of aids to navigation) can alter the need for vessels. Without establishing these requirements, the long-term need to replace a vessel — or even which type of new vessel to acquire — cannot be determined with certainty.
- The projects identified in the Plan represent a “wish list” of maintenance and replacement projects prepared by the regions and accumulated by headquarters. The list was not screened to determine whether all the projects were appropriate or required. For example, if all of the projects were approved and funded, most of the Department's large vessels would

Life cycle management has not been implemented.

Opportunities exist for better sharing of resources among regions.

be out of service for refit during some period of the Plan's five-year time frame. It is not realistic to believe that the Department could deliver its program objectives with so many vessels being taken out of service.

31.82 Prior to the current Long-Term Capital Plan, availability of funding drove the fleet capital planning process. The fleet has not put together a persuasive and realistic analysis to support its capital requests. Projects were funded on a case-by-case basis, depending on the funds available. The capital planning process causes numerous management difficulties. A recent fleet assessment completed as part of the Coast Guard's headquarters renewal stated:

The problems with the current situation are that it induces a high degree of uncertainty for approvals and long delays are incurred. As a consequence of the capital funding shortfall, it becomes more important that available funds be utilized in the optimal manner. A net result of the delays and uncertainties is higher maintenance costs and repercussions on operational and [human resources] plans such as deployment, training and recruitment. Approvals and delegations typically come very late in the fiscal year, when it is too late for procurement action in the same year, resulting in lapsed funds and a further deteriorating asset base.

31.83 In a recent Treasury Board submission, the Department alerted the Board that it was going to undertake a study "for a potential Major Crown submission aimed at revitalizing the larger cornerstone elements of the [Fisheries and Oceans] fleet." Funding for such an initiative was estimated at between \$300 million and \$400 million. Before proposing major reinvestments in the fleet, the Department needs to consider the changing nature of program requirements, the impact of technological change, and whether the service could be acquired by alternative means.

31.84 Acquiring vessels. During the course of the audit, the fleet was considering the acquisition of several vessels, including the replacement of the 1000-class, ice-strengthened, medium navigational aids tenders. This proposal was in the early pre-approval stages and therefore we did not include the acquisition process within the scope of this audit. We did note that while funding remains uncertain for a number of these "planned" acquisitions, fleet personnel have been developing acquisition plans for the 1000-class vessels since at least 1996.

Accountability for cost-effective fleet operations

31.85 Operational planning and scheduling. The five regional operations centres (ROCs) are responsible for the operational planning for the fleet and the scheduling of individual vessels. Each Centre reports through the regional Coast Guard director. While the ROCs play an important role in determining the cost effectiveness of the fleet, we found that there is no means available to hold them accountable for their role in operational planning and scheduling.

31.86 No national system is in place to regularly monitor or analyze the efficiency and economy of the fleet use or to determine the results achieved. Nor are there fleet performance standards or expectations that can be used to plan for the fleet. However, in the Newfoundland Region we observed that the ROC reports monthly to the program managers on the planned vessel activity compared with actual activity. In this instance, the program managers and fleet managers meet to discuss operational issues, including any variance from the monthly vessel schedule.

31.87 We noted variations in scheduling practices from region to region. For example, in certain regions vessels tasked to primary offshore search and rescue are not simultaneously tasked to tend navigational aids. In the Pacific Region,

however, one of the three vessels tasked to primary offshore search and rescue can at any time also be tasked to tend navigational aids. Such regional interpretations of operational policy and procedures can limit the potential for improving efficiency.

31.88 There are opportunities to improve the co-ordination between regional fleet operations and the programs they serve. For example, in certain regions navigational aids are transported, where appropriate, by truck to convenient, cost-effective locations for later pick-up by a vessel. In other cases, however, we noted that vessels made regular long-distance transits back to the base of operations to pick up or drop off navigational aids.

31.89 Fleet safety standards. The fleet is voluntarily implementing the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code). This important international code requires that roles, responsibilities, policies and procedures be established for the safe operation of vessels and the prevention of pollution by vessels. Fleet headquarters establishes the practices that regional operations must implement in order to meet the ISM Code and is monitoring regional implementation and compliance. The introduction of the ISM Code is an important step toward standardized fleet practices.

Operating without timely, reliable and integrated information

31.90 In the private sector, fleet managers get the information they need to manage their vessels through integrated ships' information systems. Information is available on financial results, costing, maintenance and repair, purchasing, crewing and payroll management, ISM Code compliance, and training management.

31.91 By contrast, we found that Fisheries and Oceans fleet managers do not have similar information readily available. Moreover, the information that they do have is not integrated with other financial and operational information to make it useful to managers, is not available on a timely basis, and is not reliable for decision-making purposes.

31.92 The problems associated with the information systems can be illustrated in the area of human resource management. The fleet uses three main information systems to manage human resources. These systems are not well integrated. For example, information on new employees must be entered separately into each system. This creates the opportunity for errors and conflicting data and is inherently inefficient. Timing differences in these systems mean that they can produce different information. While these systems can produce considerable data, regions maintain their own manual and computer-based systems to help them manage the fleet's human resources.

31.93 During our audit, we continually had difficulty obtaining routine information about the fleet and its management. For example, information on the costs allocated to individual vessels for the year ended 31 March 2000 was not available until three months later. Managers cannot obtain the same information throughout the year because of limitations in the systems.

31.94 The Deputy Minister has issued instructions that managers should stop using so-called "black book" systems — that is, informal, non-sanctioned means of recording information. However, we found that many managers continue to keep such records. That they do so despite the Deputy Minister's instructions to stop is a good indication of the problems associated with the Department's formal information systems.

The ISM Code is an important step toward standardized fleet practices.

Maintenance — the need for a national, fact-based approach

31.95 In various submissions to the Treasury Board and its officials, the Department has provided information on the implications of long-term underfunding of capital and maintenance budgets for the fleet. The Department's position is that its vessels are aging and that operating and maintenance costs for the vessels and the risks to their safe operation are therefore rising. While this hypothesis seems reasonable, we could find no analysis to support the Department's position.

31.96 In recent years, the fleet has carried out only the maintenance necessary to ensure that vessels receive certification by Transport Canada's Ship Safety Branch to operate and to safely meet operational requirements. Traditionally, the fleet was maintained in a manner that would allow vessels to operate well beyond their 30-year average expected useful life. The decision to change maintenance practices was based on funding constraints.

31.97 We expected that fleet managers would regularly review the operating status of vessels, using information on each vessel's ability to perform its tasks and to operate safely and cost-effectively. However, fleet managers currently make replacement and maintenance decisions based on their best estimate of the condition and operating cost of each vessel, with little analysis supported by facts.

31.98 The Department is currently implementing the Materiel Information Management System (MIMS), which will be used to track the costs of repairs and maintenance of fleet assets. While MIMS should go a long way in providing management information in the future, the fleet does not have the complete historical information to input into MIMS so that it

can operate effectively for the existing vessels.

31.99 Each vessel operates a ship-based system called the Predictive Upkeep and Maintenance Program (PUMP). PUMP provides information for the vessel's chief engineer on routine maintenance and inspections that are required or have been completed. This system is important for ensuring that required maintenance work is identified and completed, especially given the increasing frequency of rotation of the chief engineers.

Costliness of vessels in lay-up status

31.100 The "Base Fleet" exercise calls for 36 vessels to be held in lay-up status for future use or to be decommissioned and sold. The fleet does not separately identify the cost of vessels in lay-up. We found that lay-up can be expensive.

31.101 For example, the *CCGS Edward Cornwallis* was in lay-up status for over a year due to lack of funding. During that time, the fleet was awaiting a decision on whether the *CCGS Edward Cornwallis* would be used as a science platform. The vessel was non-operational in 1999–2000, except for about two weeks, yet it incurred \$1.2 million in salaries and operating costs. The *CCGS Edward Cornwallis* has subsequently gone back into service, not as a science vessel — but largely to provide an offshore search and rescue capability.

31.102 Another example is the *CCGS Sir John Franklin*, an icebreaker in the Newfoundland Region, which was declared surplus in 1996. It was subsequently placed into service in both the Laurentian and Newfoundland Regions as a replacement vessel, and was placed into lay-up effective March 1999. During 1999–2000, it cost \$440,000 to maintain this vessel in lay-up status. Subsequently, when it was not included as one of the vessels funded through the "Base Fleet" exercise, the Department

decided to dispose of the *CCGS Sir John Franklin*.

31.103 There is no national guidance on the most cost-effective means of maintaining vessels in lay-up status. We note that in this respect, as in many others, practices vary among regions. In the Central and Arctic Region, which operates seasonally, vessels in long-term lay-up status are monitored through remote sensors and thus require no crew to be aboard. In contrast, the Maritimes Region maintained the *CCGS Edward Cornwallis* with a reduced crew of five to six people during most of the period it was in lay-up status.

31.104 Once the Department has identified vessels that are surplus to its needs, they become the responsibility of Public Works and Government Services Canada, which handles the remainder of the disposal process. This aspect of the disposal process was outside the scope of this audit.

31.105 Summary. The fleet currently does not operate its vessels using the life cycle approach. This approach has been under development for a number of years but is still not nearing implementation. By using inconsistent practices in managing the fleet, the Department is missing opportunities to achieve greater efficiencies and to share good practices.

31.106 The Department should consider a longer-term strategy to renew its aging fleet. Such a strategy should take into consideration the changing nature of program requirements, the impact of technological change and the potential for alternative means of acquiring the service needed.

31.107 The Department should complete the development and implementation of life cycle management policies and procedures for its fleet.

31.108 The Department should ensure that the fleet activity is supported by information systems that produce integrated, timely, reliable and relevant information.

Managing the Fleet's Human Resources

The fleet's single largest operating expense

31.109 In 1999–2000, salaries and related expenses represented about 79 percent of the vessel operating costs allocated to the programs. At 1 April 2000, 756 officers and 1,308 crew were assigned to vessels, although the number of people varies during the year depending on seasonal requirements.

31.110 Because the fleet is not a separate organizational unit, it is difficult to determine which shore-based human resources are directly involved in supporting it. Based on information obtained from each region, interviews with managers, and a review of organization charts, we conservatively estimate that there are about 447 full-time-equivalent shore-based positions that provide direct support to the fleet (see Exhibit 31.8). Also, approximately 55 positions associated with the Canadian

Exhibit 31.8

Shore-Based Positions that Directly Support the Fleet

July 2000

	Headquarters	Regions	Total
Operations	52	153	205
Technical Support	16	171	187
Other Administrative Support	0	55	55
Direct Shore-Based Support	68	379	447
Coast Guard College			55
Total Shore-Based Support			502

Source: Fisheries and Oceans

The fleet does not have a human resource plan.

Coast Guard College provide training support directly to the fleet. Still other positions, in areas such as finance and information technology, provide indirect support to the fleet; however, it was not possible to estimate their number.

Need for a human resource plan

31.111 The fleet has faced considerable funding reductions since 1995. However, it has not prepared a human resource plan that establishes the basis for determining the number and types of personnel required to operate and support the reduced number of vessels in the fleet.

31.112 In 1995, the Coast Guard fleet completed a comprehensive review of vessel crewing practices and procedures. The review recognized the need for a policy framework for vessel crewing. Also needed were guidelines to ensure a consistent approach from region to region, improved training, better scheduling practices for leave and training, rotation of ships' officers, pooling for ships' crews, and improved management of overtime costs. Although there has been some progress on the issues that focussed on cost reduction, the fleet did not establish a plan to implement the review's recommendations. In fact, we found that many of these concerns still exist within the fleet.

The impact of human resource issues on operations

31.113 National guidance on human resource matters is inadequate. Like many other areas in the fleet, there is inadequate national guidance for human resource matters. Consequently, there are variations in human resource practices among the regions, and regional interpretations of collective agreements with employees.

31.114 Managing collective agreements. The fleet operates under two main collective agreements with its seagoing personnel — one for officers and

one for crews. However, these collective agreements generally reflect the operating conditions of the federal public service as a whole except for the lay-day provisions. The fleet lay-day system predominantly uses a work period of 28 continuous days followed by a leave period of 28 days (it can be any period up to 45 days). During the 28-day work period, each crew member works 12 hours a day, seven days a week.

31.115 Use of provisions associated with more regularly scheduled public service positions in a lay-day system has proven to be particularly problematic. For example, a recent dispute over annual leave entitlements resulted in a 51-page adjudicator's decision and in most ships' officers having their annual leave entitlement doubled. It also resulted in an inequitable situation with most officers now receiving double the leave of the few officers who are not covered by the decision. We are concerned that the existing collective agreements are complex and difficult to administer.

31.116 The collective agreements include a premium paid when more than 45 lay-days have been accumulated. However, icebreaker crews are deployed in the Arctic for periods of up to 42 days. Crew members having more than three accumulated lay-days at the beginning of an Arctic deployment could be eligible to receive the premium, thus increasing costs.

31.117 Collective agreements and fleet funding formula constrain the flexibility of vessel scheduling. We reviewed the fleet's method of justifying the funding required for salaries, training and other personnel costs. The funding process, called the 10–2–1 formula, is based on the annual operation of vessels using thirteen 28-day cycles. Ten cycles are funded for operations, two for lay-up and one for an annual refit.

31.118 The fleet attempts to operate its vessels on a 10–2–1 schedule because of the existing collective agreements and

funding limitations. However, this schedule can be problematic from an operational perspective. For example, while some vessels actually operate for 10 cycles per year, most operate for more or fewer than 10 cycles.

31.119 In reality, management has decided to operate the vessels in a way that allows officers and crew to use up the significant leave entitlements (annual, lay-day and overtime) accumulated under normal operations according to their existing collective agreements. If management were to do otherwise, the cost of operating the vessels would be prohibitive. Prior to 1995, the fleet had sufficient flexibility to manage the accumulation of leave by using officer and crew relief pools. Later, as part of cost reduction initiatives, the Department eliminated relief pools. This has constrained management's flexibility to schedule ships' personnel and to provide service to the programs.

31.120 Managing sick leave and work-related injuries. According to the Department's MariTime fleet management system, sick leave used in 1999–2000 totalled 68,410 hours for ships' officers and 120,419 hours for ships' crews, with 95 percent of the sick leave used by personnel in indeterminate positions. The MariTime fleet management system reports that the average sick leave used by ship-based indeterminate personnel was 115 hours per year, or roughly the full amount of sick leave allotted each person each year. However, the reported use of sick leave by indeterminate seagoing personnel in the Maritimes Region averaged about 160 hours each. In contrast, sick leave in the public service is 67 hours a year. We were also informed by managers that there is a seasonal pattern to sick leave usage. Seagoing personnel who report in sick must be replaced in order that the vessels can sail. Replacements are often paid overtime, which adds to the cost of operations. We found no evidence that managers have

attempted to understand or reduce the use of sick leave.

31.121 We also noted that the fleet incurs a high proportion of the Department's disabling injuries. In 1999, the fleet accounted for 71 of 88 such injuries (in 1998, it was 65 of 75). On 1 April 2000, there were 71 fleet employees on long-term disability. There are safety committees on each ship and throughout the fleet. However, statistics on sick leave and injuries suggest that management needs to focus more on these issues.

31.122 Managing overtime costs. At 1 April 2000, the Coast Guard had about 3,676 full-time-equivalent positions. This represents about 43 percent of the Department's staff. In June 1999, the Department's Corporate Services, Human Resources Directorate issued a report on overtime management. The report noted that the Coast Guard had incurred 70 percent of the Department's \$33 million expenditure on overtime in 1998–99, the largest portion of which was incurred by fleet personnel. The report authors could find no evidence that managers were trying to reduce overtime costs.

31.123 Managing the leave liability. Officers and crew are entitled to annual leave and to leave as a result of overtime and other lay-day provisions of the collective agreements. As described earlier, the 10–2–1 system is designed to permit the use of this leave during the two lay-up cycles and, to a lesser extent, the refit cycle. In order to meet program requirements, regions often operate the vessels for additional cycles. This reduces the opportunity for seagoing personnel to use their leave. The situation is having two negative consequences for the fleet:

- When officers and crew take leave entitlements rather than being paid out, it may be during operating cycles. These personnel must be replaced, often by employees who receive overtime. This adds to the cost of operations and,

The leave liability is increasing.

potentially, further increases the Department's leave liability.

- The fleet estimates that the total leave liability at 31 March 2000 was \$23.8 million (\$17 million in 1999), with the Maritimes Region accounting for about \$7.6 million of this (\$5.1 million in 1999). Not all of these amounts have been entered into the Department's formal accounting records. In not recording the liability when it was incurred, the fleet has consistently understated its operating costs. When the Financial Information Strategy comes into effect on 1 April 2001, the full unrecorded leave liability will have to be entered into the Department's accounting records.

31.124 Vessel crewing requirements. Since our audit of the fleet in 1989, the total number of seagoing personnel and the sizes of crews on each vessel have been reduced. However, we have noted differences in the crewing levels of similar vessels operated in different regions. For example, an 1100-class navigational aids tender engaged in work on navigational aids in the Newfoundland Region has a crew of 24, while the same vessel in the Pacific or the Central and Arctic Region has a crew of 26. Newfoundland Region vessels do not carry a logistics officer and have one fewer steward than the other regions. Competency profiles, required under the ISM Code, are being developed regionally and will establish the number of positions by vessel. However, as with many of the issues we have identified, we could find no national analysis to explain the differences in crew sizes or to share best practices that could allow for a common approach.

Ensuring that properly skilled personnel are available

31.125 During our interviews with the Department's internal users of fleet services, we were invariably informed that the quality of the fleet personnel was high. We reviewed a number of factors to

determine whether fleet personnel had appropriate knowledge, skills and competencies.

31.126 The fleet is in the process of developing for each position on each vessel a competency profile that will meet the requirements of the ISM Code. It is also developing a profile of the various program tasks that each vessel performs. Those profiles are complete or there are work plans in place to develop them.

31.127 The fleet has a system to track hazardous occurrences. Between April 1999 and February 2000, 68 hazardous occurrences were reported. Two of them were potentially serious — one was a near collision and the other was the partial flooding of an engine room. Both incidents were attributed to the inexperience of the crew. In the first instance, the captain was not familiar with the nature of the operations; in the second, the engine room staff were not familiar with the vessel.

31.128 The officers and crew of the fleet are required to develop and maintain a wide range of skills and knowledge. The fleet has identified a shortfall of \$1.55 million in the 2000–01 training budget to meet basic technical training requirements. Some of these training requirements were identified as part of the ISM Code implementation.

31.129 We also noted that a number of ship-based personnel are given shore-based assignments, often because of personal preference. Such assignments can be useful from an organizational and personal development perspective. However, the fleet has not identified all of these rotational positions, established criteria for staffing them or ensured that assignments come to a definite end. Because these personnel are "assigned" to vessels, this practice also increases the reported operating costs of individual ships.

31.130 We also reviewed the attrition rate among officers. According to the

fleet, regions lost the following proportions of their officers over the last two years:

Central and Arctic	13 percent
Pacific	11 percent
Laurentian	10 percent
Newfoundland	6 percent
Maritimes	4 percent

31.131 While these numbers are not alarming, they are a concern because the losses are occurring primarily among junior officers who represent the future officer core. The turnover is also a concern because it takes six to eight years to recruit, educate and train officers, and the demand is growing in the marine industry for qualified officers. The average age of an officer is 44.

31.132 We found that officers and crew in the current complement are highly skilled. However, there is no plan for ensuring that the fleet will continue to recruit, retain and train sufficient personnel into the future. All of these factors combined suggest that the fleet needs to prepare a long-range strategy for replenishing its officers and crew and continuing to develop and maintain their skills and knowledge.

Shore-based support is too large given the current size of the fleet

31.133 We reviewed the number of shore-based staff who directly support the fleet. Exhibit 31.8 shows the distribution of the shore-based staff. The fleet has a ratio of about one shore-based position directly involved in supporting operations for every four seagoing staff members.

31.134 In trying to determine the reasons for this ratio of shore personnel to seagoing personnel, we observed the following:

- The fleet makes extensive use of term, seasonal, casual and temporary employees to staff what are often, in substance, indeterminate positions (see Exhibit 31.9). The requirement to continually staff these positions creates an administrative burden. For example, the Maritimes Region has 108 positions classified as seasonal or term. These are often, in reality, full-time indeterminate positions because of the limited extent to which the work in that region is seasonal. It can take several months to establish an eligible list for term positions. We noted instances where regions had to make casual appointments because of the length of time it took to staff term positions. This interim measure resulted in two staffing actions to fill one position. Not only do these “revolving door” situations create an administrative burden, but employees are also suffering stress and low morale due to long-term uncertainty about their status. We noted that some term positions have been converted to indeterminate because employees have had five years of uninterrupted service.

- Scheduling of crews is difficult and time-consuming. Under the ISM Code, the ship is not supposed to leave port unless

Shore-based support is too large.

Exhibit 31.9

Ships' Personnel by Employment Status

January 2000

	Number	Percentage
Crew		
Indeterminate	896	61
Seasonal, Casual, Terms and other	563	39
	1,459	
Officers		
Indeterminate	646	83
Seasonal, Casual, Terms and other	131	17
	777	

Source: Fisheries and Oceans

all essential positions are filled. Therefore, when a crew member scheduled for work is sick or requests annual leave, shore-based scheduling staff must quickly find a replacement if the vessel is to leave as scheduled. This requires extensive adjustments to work schedules and last-minute redeployment of people. Systems to manage the work schedules of employees are complex, requiring substantial support to enter, analyze and correct data.

31.135 We also noted that operating five separate regionally based fleets contributes to the number of shore-based personnel. On the Atlantic coast, there are three separate regional organizations to support a planned total of 26 large vessels. Each region maintains a separate operations centre and separate engineering, technical support and administrative arrangements. These multiple structures may no longer be appropriate given the reduced size of the fleet.

The fleet has not focussed on managing its human resources.

31.136 Summary. We are concerned that the fleet has not focussed attention on managing its human resources, despite the fact that they represent about 79 percent of the vessel operating costs allocated to the programs. Difficulties associated with planning for the fleet have resulted in a situation where there is inappropriate use of seasonal jobs, inordinately high use of term employees, inadequate training to meet operational requirements, and collective agreements that effectively limit vessel use and complicate crewing. In addition, shore-based support is excessive given the reduced current size of the fleet. We are concerned that the Coast Guard knew as early as 1995, prior to the merger, about many of the issues that we have reported, yet management has taken little action.

31.137 The Department should develop a human resource strategy for the fleet to address the need to maintain the skills and knowledge of ship-based personnel and to ensure that a sufficient number of qualified officers and crew

are available in the future. The strategy should consider a long-term approach to the collective agreements with ships' personnel so that they can be administered in an efficient and economical manner and can support the fleet's operational requirements.

31.138 The Department should regularly analyze payroll costs related to the fleet and take action to control such costs, where necessary.

Conclusion

31.139 As noted in the chapter we found weaknesses in key management practices in each of the areas we audited — levels of service and accountability, life cycle management and human resource management. To ensure that the fleet service is provided in a cost-effective manner, we believe that the resolution of these weaknesses requires management's prompt action.

Fisheries and Oceans' overall response: Fisheries and Oceans accepts the Auditor General's findings, and is committed to finding solutions to the shortcomings. To this end, a study is already under way that will derive a series of strategic options for fleet management. Following the completion of this study, its recommendations will be reviewed and an Action Plan with concrete timelines and accountabilities will be developed to address each of the following issues:

- 1) fleet operational requirements and planning;*
- 2) fleet resource allocation and reallocation;*
- 3) resource utilization and redeployment mechanisms;*
- 4) fleet management support;*
- 5) vessel crewing;*
- 6) fleet performance management and costing systems; and*
- 7) relevant management roles, relationships and interfaces.*



About the Audit

Objectives

The objective of this audit was to assess the extent to which Fisheries and Oceans manages the fleet to meet the current and long-term needs of users in a cost-effective manner.

Scope

We examined three key aspects of the Department's management of the fleet:

Mandate, mission and levels of service. We reviewed the extent to which the Department had clearly established the mandate and mission of the fleet, and whether expectations on levels of service were defined and met. We also examined accountability arrangements between the fleet and users and the long-term funding arrangements for the fleet.

Life cycle management. We reviewed the way the Department assesses the requirements for vessels, manages the use and maintenance of vessels and administers disposals.

Human resource management. We examined the way the fleet ensures that it has the appropriate number and types of human resources to provide fleet services in a cost-effective manner.

Criteria

We expected that:

- the Department's management of the fleet would be based on a clearly established mandate and mission;
- accountability relationships for achieving the cost-effective delivery of the fleet services would be clearly articulated and monitored;
- the fleet would require the Department's programs and/or other government departments, where appropriate, to specify in quantifiable terms the short- and long-term need for services;
- the fleet would obtain the funding necessary to carry out the level of service requested by the Department's programs;
- the Department would employ the appropriate management systems and practices, including life-cycle management processes, required to provide the requested fleet services in a cost-effective manner; and
- the Department would use the appropriate number and type of human resources required to provide fleet services in a cost-effective manner.

Audit Team

Assistant Auditor General: Ronald C. Thompson

Principal: John O'Brien

Director: Kevin Potter

Glenn Doucette

Don MacNeill

Sandy Manels

Erika Szenasy-Boch

For information, please contact John O'Brien.