



# ANNUAL REPORT 2004

National Search and Rescue Program



Interdepartmental Committee on Search and Rescue

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## Introduction

Canada's National Search and Rescue Program improves the safety of people at risk and provides an effective response that saves lives.

The 2004 Annual Report on the National Search and Rescue Program provides information for the Lead Minister for Search and Rescue, other federal ministers with responsibilities for search and rescue (National Defence, Fisheries and Oceans Canada, Environment Canada [Parks Canada and the Meteorological Service of Canada], Public Safety and Emergency Preparedness Canada [RCMP] and Transport Canada), Parliament and the Canadian public.

It describes the organization of the program, reviews the activities of the past year, and summarizes the issues and trends that are currently of particular import to the program. It provides an overall picture of the federal resources devoted to the program and the results achieved. (Provincial and volunteer SAR resources are not reported on in detail because the variety of different jurisdictions and organizations all have significantly different reporting procedures.)

This Annual Report is one of three key documents produced each year that guide and report on the National Search and Rescue Program. It is complemented by a Strategic Directions document, which provides long-term direction, and an annual Program Plan, which highlights issues to be dealt with in the coming year.

This Annual Report is produced by the National [Search and Rescue Secretariat](#), under the direction of the [Interdepartmental Committee on Search and Rescue](#).

## 1. The SAR Environment in Canada

Canadians face some of the world's greatest SAR challenges. Canada covers an immense land mass of more than 10 million square kilometres. Canada's area of responsibility for SAR extends even further—north to the North Pole, as well as 1,000 kilometres west into the Pacific Ocean and 1,300 kilometres east into the Atlantic Ocean.

Although Canada is large, it is relatively sparsely populated over much of its territory, with most of the population residing near the U.S. border. Outside of this heavily populated strip, SAR incidents are likely to occur far away from roads, airports and harbours.

The terrain in Canada varies widely, from permanently frozen ice caps north of the Arctic Circle to almost-impenetrable forest cover on British Columbia's west coast. Temperatures range from  $-40^{\circ}\text{C}$  in January to  $35^{\circ}\text{C}$  in July. These geographic extremes are both a cause of SAR incidents and a hindrance in responding to them.

Overcoming these and other challenges has been the impetus for building an SAR system that is respected worldwide.

## 2. The SAR Community

### Who Is Responsible for SAR?

In Canada, the federal government and the provincial/territorial governments share statutory responsibility for search and rescue; each has authority within its own jurisdiction, and they collectively make up the [National Search and Rescue Program \(NSP\)](#). Further cooperation agreements with municipalities and numerous non-governmental SAR organizations set out additional SAR response and prevention activities for these organizations.

The federal government's collective SAR activities make up the Federal Search and Rescue Program (FSP), which involves close linkages among the six federal department and agency partners:

[Canadian Forces, Department of National Defence](#)  
[Canadian Coast Guard, Fisheries and Oceans Canada](#)  
[Transport Canada](#)  
[RCMP](#)  
[Parks Canada Agency](#)  
[Meteorological Service of Canada, Environment Canada](#)

The National Search and Rescue Secretariat (NSS), working closely with the operational departments, is responsible for NSP policy, planning, co-ordination and reporting.

SAR incidents can be divided into three categories: maritime, aeronautical and ground.

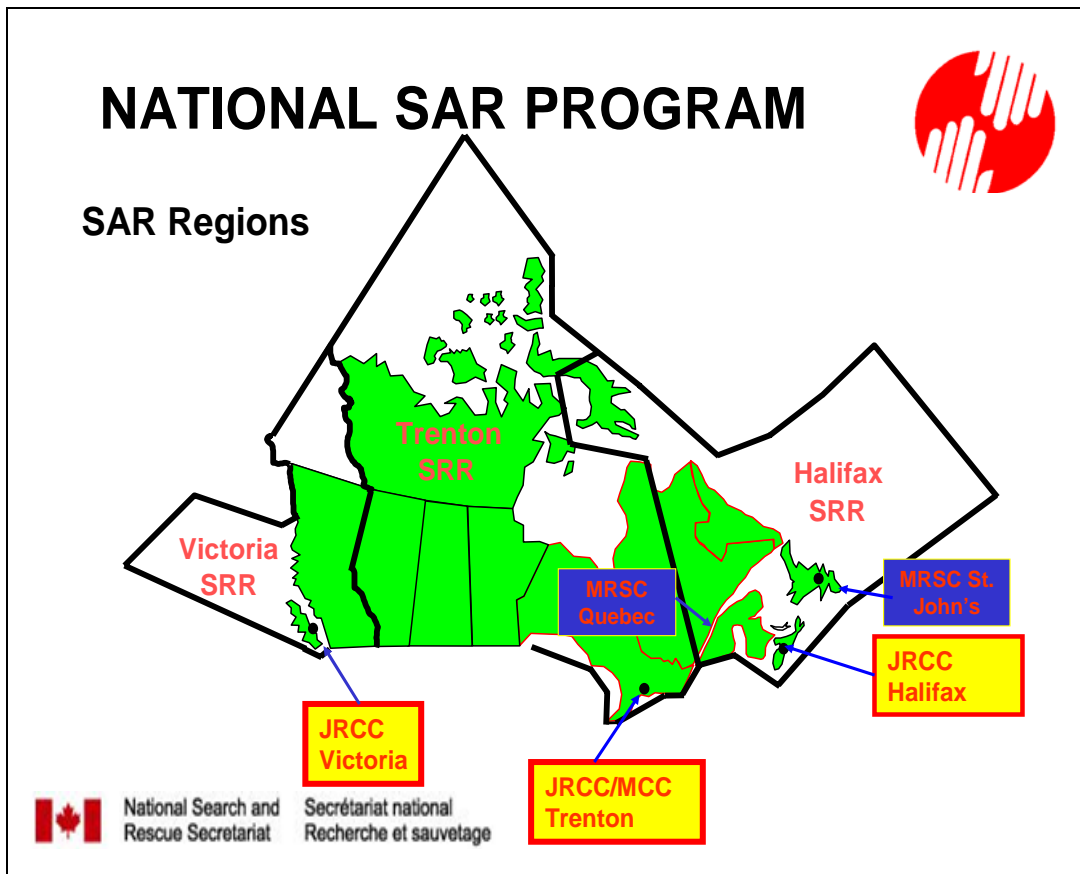
*Maritime SAR* refers to activities within Canada's oceanic area of responsibility under International Maritime Organization (IMO) agreements, as well as Canadian waters of the St. Lawrence Seaway and the Great Lakes. Response to maritime SAR is managed by the federal government through three Joint Rescue Coordination Centres (JRCCs) and two Maritime Rescue Sub-Centres (MRSCs). Marine SAR operations are carried out by Canadian Coast Guard (CCG) and [Canadian Coast Guard Auxiliary \(CCGA\)](#) vessels and by Canadian Forces aircraft.

*Aeronautical SAR* covers any type of search for aircraft, over land or water. Response to this type of SAR incident is also coordinated by the three JRCCs. Aeronautical SAR operations are carried out by Canadian Forces and [Civil Air Search and Rescue Association](#) (CASARA) aircraft, and also, when a missing aircraft's route includes portions over water, by CCG/CCGA vessels.

*Ground SAR* services, such as locating lost, missing or distressed persons on the ground, are provided by provincial/territorial government organizations. Searches on inland waters (such as lakes and rivers) outside national parks are included in this category. In most cases, ground and inland water programs are managed by provincial/territorial emergency measures organizations, with SAR operations carried out by police, emergency services personnel and an extensive network of skilled volunteers.

SAR incidents within Canada's national parks – ice-field or avalanche rescues, for example, or wilderness searches – are coordinated and conducted by specialists and volunteers from the Parks Canada Agency.

The Canadian federal SAR area of responsibility is shown in Figure 1.



**Figure 1:** Canadian Federal SAR Area of Responsibility  
 JRCC — Joint Rescue Co-ordination Centre  
 SRR — Search and Rescue Region  
 MRSC — Maritime Rescue Sub-Centre  
 MCC — Mission Control Centre (Canadian SAR Satellite [SARSAT] Control Centre)

### **SAR Challenges and the Pressures of a Changing World**

Demographic changes in Canada’s population are a factor in the increasing frequency with which SAR activities are needed. Evidence suggests that Canada’s aging population, many of whom remain healthy and active well into their senior years, is devoting significant resources to more demanding leisure pursuits.

The face of the volunteer community, so essential to SAR, is also changing. As more and more young people move from regional to urban centres to pursue education and career opportunities, the number of SAR volunteers in rural areas is declining.

An increase in rugged outdoor recreational activities such as kayaking and rock climbing has also contributed to new demands in SAR services, as have the rise in travel to and across the Canadian North and the growth in the cruise industry, especially in more remote waters.

SAR in Canada has also felt the effects in recent years of a widening recognition that volunteers provide a trained and organized resource that can be called upon in the event of natural disasters. The vessels, aircraft vehicles and trained personnel (including

volunteers) that are used for search and rescue are increasingly being asked to perform other tasks, such as disaster response.

The prevention of SAR incidents has always been a key element of the responsible use of SAR resources, and it is one that is receiving more and more emphasis today. However, [SAR prevention](#) depends heavily on volunteer participation, and is therefore subject to pressure from demographic change (as mentioned in the discussion of SAR volunteers above), as well as from constraints on public-sector finances. These constraints are expected to lead to a greater emphasis on voluntary resources, such as CASARA, the CCGA, and volunteer ground SAR associations.

Canada is a signatory to several international agreements and cooperates with the worldwide community in providing SAR services. Therefore, any changes at the level of the [International Civil Aviation Organization \(ICAO\)](#) and [International Maritime Organization \(IMO\)](#) may affect the NSP. In the past three years, the high level of the terrorist threat and the resulting reappraisal of Canada's security stance have required maritime SAR assets to be ready for more multi-tasking, and have led to the need for more flexible use of all federal resources. This trend is certain to continue for some years to come.

Technological developments in satellite communications and in position-finding equipment have increased the ability of people who are in distress or difficulty to summon assistance. As beacons and Global Positioning Systems become more affordable and hence more common, the number of demands for SAR response increases, but at the same time it becomes easier to locate someone in distress.

Improving technology has also introduced other related challenges. As the main federal SAR providers have received new and more capable equipment, including helicopters and lifeboats, over the past three years, their SAR capability has increased, but additional training for personnel and volunteers has been required. All introductions of new equipment and technology come with a related training cost.

Interoperability – that is, the ability to coordinate equipment, training and procedures amongst SAR responders – continues to be a challenge. The diversity of the provincial and territorial authorities and organizations that, together with the federal bodies, make up the national SAR safety net, means that more effective coordination and more commonality in equipment are needed to achieve seamless SAR delivery. In particular, experience in both live operations and exercises suggests that reliable, widely available radio communication is a basic requirement. Realistic exercises that simulate potential SAR incidents are one of the most effective ways to ensure the system works when it is needed and improve coordination through experience, but in a multi-jurisdictional environment they are expensive and require a great deal of advance planning.

In addition to the challenges outlined above, financial constraints and other government priorities have also had an impact on SAR in Canada. The federal SAR community is compelled to review its commitments continually and to revise its plans regularly to obtain the best value for public money.

### **3. Federal Management of the National SAR Program**

The Federal Search and Rescue Program (FSP) consists of the individual and collective SAR activities of the six federal government departments and agencies listed in section 2, above. Each of these organizations has either a primary or a secondary role in providing SAR services in the areas where the Canadian federal government has the SAR mandate (see the map in Figure 1, above).

#### **Lead Minister for SAR**

In 1986 Cabinet designated the [Minister of National Defence](#) to be Lead Minister for SAR in the federal government and the federal spokesperson on national SAR matters.

#### **Interdepartmental Committee on Search and Rescue (ICSAR)**

The FSP is managed through the Interdepartmental Committee on Search and Rescue (ICSAR). The membership of ICSAR includes senior representation from each of the six federal departments with SAR program delivery responsibilities (see section 2, above), plus observers from [Public Safety and Emergency Preparedness Canada](#), [Treasury Board Secretariat](#), [the Privy Council Office](#), [the Department of Indian and Northern Affairs](#) and [Natural Resources Canada](#).

ICSAR is chaired by the Executive Director of the NSS and is accountable to the Lead Minister for SAR. The Committee reviews, reports on and approves FSP policies and plans on behalf of its member departments. It is supported by two sub-committees: the Coordination Sub-Committee and the Review Sub-Committee, each of which consists of managerial-level representatives from the ICSAR member departments.

#### **National Search and Rescue Secretariat (NSS)**

The NSS was established by Cabinet decision in 1986 to provide leadership to the NSP through the ICSAR. The NSS reports directly to the Lead Minister for Search and Rescue.

The NSS is accountable to the LMSAR, through ICSAR, for the development, coordination, analysis and review of FSP policies, plans and specific components and activities. These components and activities include administering the [New SAR Initiatives Fund \(NIF\)](#); representing Canada at the [COSPAS-SARSAT program](#); maintaining the [Canadian Beacon Registry](#); publishing the online [SAR SCENE magazine](#) and conducting the annual [SAR SCENE workshop](#).

In addition, the NSS plays a leadership role, enhancing coordination between provincial and territorial SAR programs and the FSP as well as providing program-level advice and information to the Lead Minister for Search and Rescue.

The horizontal program environment requires the NSS to work in partnership with international, federal and provincial/territorial clients and stakeholders toward realizing the NSP's vision and objectives.



## **National SAR Program Vision and Objectives**

The NSP focuses on the achievement of a seamless SAR system in Canada, guided by a vision statement and two objectives:

The NSP's vision is of a *Canada where the critical importance of search and rescue is reflected in a multi-jurisdictional approach to promoting individual, collective and organizational behaviour that minimizes the risk of injury or loss of life while maintaining timely and effective response services.*

Supporting this vision are a response objective and a prevention objective:

- To ensure an effective SAR response (capability) in all areas of Canada;
- To educate individuals and organizations on the assessment of risks and the importance of acquiring and using the knowledge, skills and equipment needed to minimize injury and/or loss of life.

## **Fiscal and Human Resources**

Tables 1 and 2, below, show the extent of the monetary and human resources dedicated to SAR by the six FSP department and agency partners.

Note that the information is based on the federal government's fiscal year (April through March). This Annual Report and the Program Plan are based on the calendar year (January through December), which is most meaningful for SAR activities.

**Table 1: Federal Search and Rescue Program (FSP) Costs (in \$ thousands) by Participating Department**

<i>Department or Agency</i>	<b>2001-02 Actual</b>	<b>2002-03 Actual</b>	<b>2003-04*</b>	
			<b>Planned</b>	<b>Actual</b>
National Search and Rescue Secretariat (NSS)	10,267	10,499	10,561	11,269
Meteorological Service of Canada (Environment Canada)	985	985	1,600	1,600
Canadian Coast Guard (Fisheries and Oceans Canada)	94,108	86,295	93,393	93,393
Canadian Forces (National Defence)**	220,802	181,095	154,376	161,589
Parks Canada Agency	4,929	4,929	4,929	4,929
RCMP***	N/A	N/A	N/A	N/A
Transport Canada****	N/A	N/A	N/A	N/A
<b>Total</b>	<b>331,091</b>	<b>283,803</b>	<b>264,859</b>	<b>272,780</b>

**Source:** Department of National Defence, *Departmental Performance Report: 2002-2003*

**Table 2: Federal Search and Rescue (SAR) Personnel Requirements (FTEs)**

<i>Department or Agency</i>	<b>2001-02 Actual</b>	<b>2002-03 Actual</b>	<b>2003-04</b>	
			<b>Planned</b>	<b>Actual</b>
National Search and Rescue Secretariat (NSS)	19	20	20	18
Meteorological Service of Canada (Environment Canada)	14	14	14	14
Canadian Coast Guard (Fisheries and Oceans Canada)*	N/A	N/A	N/A	N/A
Canadian Forces (National Defence)	737	637	628	781
Parks Canada Agency	67	64	64	64
RCMP***	N/A	N/A	N/A	N/A
Transport Canada****	N/A	N/A	N/A	N/A
<b>Total</b>	<b>837</b>	<b>735</b>	<b>726</b>	<b>877</b>

**Source:** Department of National Defence, *Departmental Performance Report: 2002-2003*

**Notes:**

\* Since Coast Guard operations involve multi-tasking, full-time equivalent (FTE) figures were not available.

\*\* The Actual figures for 2002-03 are lower than the Planned figures because the costs of the SAR helicopter project were lower than expected, and because the allocation of these and other operation costs improved, based on actual SAR activity levels.

\*\*\* As most of the financial and resource allocations for SAR are provided under provincial auspices, FTEs relative to a federal program are difficult to gauge. The RCMP does not have any primary resources dedicated at the federal level to SAR. Other departments or agencies may request RCMP aid for SAR activities in the form of multi-tasking of vessels or air services, and the force supports other departments to the extent possible when lives are at stake.

\*\*\*\* TC has no mandate for primary SAR and does not identify or dedicate resources to these activities. The proportion of the departmental resources deemed to contribute to the prevention of SAR is under review and will be shown in future reports.

## **Primary SAR Resources**

The following federal primary SAR resources were available for SAR operations in 2004:

- **Canadian Forces**
  - 15 Cormorant helicopters (Comox, Trenton, Greenwood and Gander);
  - 6 Buffalo aircraft (Comox);
  - 3+ Hercules aircraft (Winnipeg, Trenton and Greenwood).
  
- **Canadian Coast Guard**
  - 105 total vessels available;
  - 36 lifeboats on primary SAR alert;
  - 1 hovercraft (Vancouver);
  - 7 large patrol vessels on primary SAR alert (one seasonal only);
  - 23 inshore rescue boats (summer only).
  
- **National Volunteer Organizations**
  - CASARA
    - 3,077 members;
    - 389 aircraft at 40+ airports across Canada;
    - \$2.3 million 2003-04 federal contribution.
  - CCGA
    - 5,100 members;
    - 1,500 vessels;
    - \$4.5 million 2003-04 federal contribution.

In addition, many other governments and organizations contribute to Canada's SAR system, including provincial and territorial governments and police forces, over 13,000 ground SAR volunteers and many safety organizations, such as the [Canadian Red Cross](#), the [Royal Lifesaving Society](#), the [Canadian Power and Sail Squadrons](#) and the [Canadian Safe Boating Council](#).

## **4. Activity Levels**

### **Maritime SAR**

Canada is a maritime nation. More than half of the country's trade travels by sea or on the Great Lakes. Maritime trade and travel are vital for Canada's economic well-being.

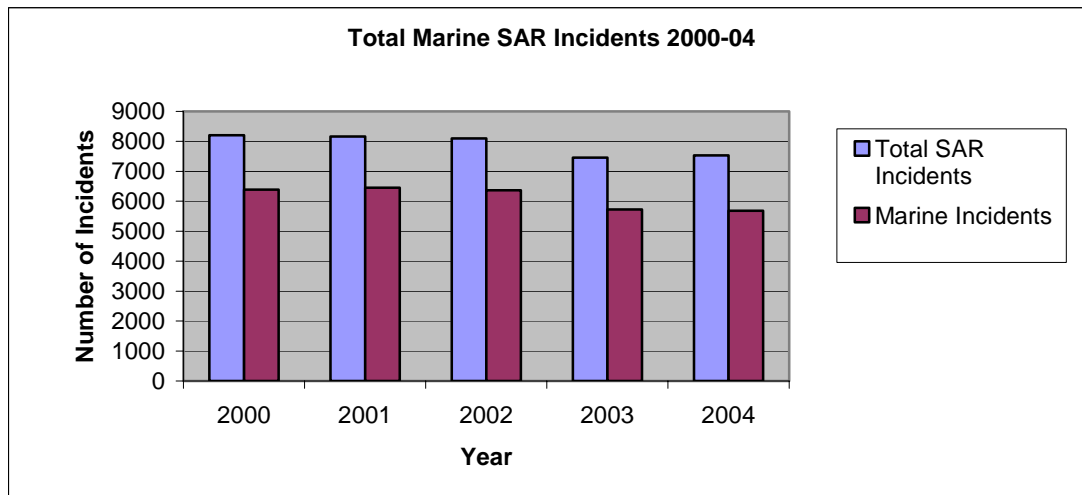
Additionally, half of all Canadians are involved in water-based recreation: sailing, power boating, paddle sports, fishing, swimming, sport diving, etc. It is estimated that Canadians own a total of 3.4 million pleasure craft. In 2004, cruise ships and domestic ferry operators transported some 34 million passengers. There are also approximately 22,000 registered commercial fishing vessels in Canada.

These figures give some context to the following information on maritime SAR activity.

In 2004, 5,682 marine-related SAR incidents were handled by JRCCs, representing 76.0 per cent of total SAR incidents that fell within the federal mandate. A total of 69 deaths were reported.

Over the past five years, there has been a gradual downward trend in the number of maritime SAR incidents (see Figure 2). Recreational vessels and activities provided the biggest source of activity, approximately 60% of all maritime incidents, and the most prominent problem area continues to be mechanical failure in small craft.

Cruise shipping has remained at similar levels to 2003. Figures for passengers and port calls at Vancouver were down slightly for the second year in a row, while figures for East Coast ports were up. Vancouver remains by far the busiest port, with three times as many cruise passengers as the next busiest, Halifax.



**Figure 2:** Maritime SAR Incidents, 2000-04

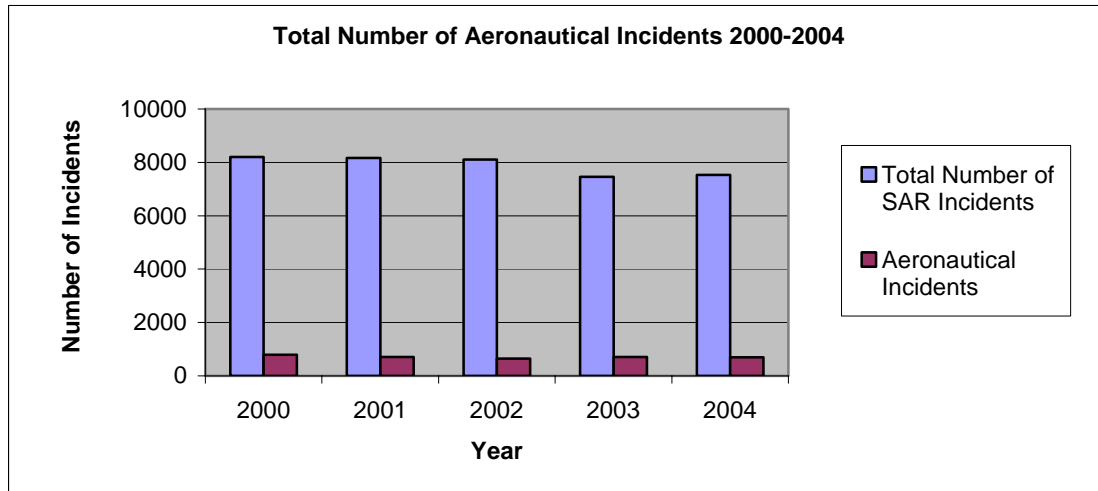
### **Aeronautical SAR**

Canada's geography and its population distribution make air transportation a key mode of travel; it includes not just commercial airlines but also commercial operators of smaller aircraft (e.g., charter float planes) and privately owned light aircraft.

In 2004, the commercial airline industry transported just over 54 million passengers to, from, or within Canada. In the light aircraft sector there are 29,110 registered aircraft and 78,742 licensed pilots operating from 1,746 airports across the country. This sector represents a wide variety of flying activities, such as flights for remote hunting and fishing excursions, commercial heli-logging, access to isolated communities, private sightseeing flights and more. In 2004 the SAR system responded to 683 aeronautical incidents, down slightly from 2003 but not far from the five-year average of 708 (see Figure 3).

Aeronautical incidents constitute a small proportion of SAR activity. They mainly involve private piloted light aircraft rather than the commercial aviation sector. With a few exceptions, serious cases involving loss of life are confined to light aircraft carrying four or people or fewer. There were 48 lives lost in aeronautical incidents in Canada in 2004.

The Civil Air Search and Rescue Association (CASARA), Transport Canada and other agencies continue their ongoing education and training efforts to reinforce the requirement for operators of light aircraft to file accurate flight plans and to carry robust, effective [Emergency Locator Transmitters](#) (ELTs). When search aircraft can home in directly on an ELT signal, rescuers can locate a crash site and provide assistance quickly. Conversely, if a missing aircraft's emergency locator beacon does not activate, an extended search involving more resources may be required.



**Figure 3:** Aeronautical SAR Incidents 2000-04

### **Ground and Inland Water SAR**

In 2004, an estimated 1,800 [ground and inland water SAR](#) missions were conducted across the country by provincial/territorial authorities. These operations responded to climbers, hunters, people with [Alzheimer's disease](#), recreational boaters, families on camping trips and hundreds of other Canadians and visitors who found themselves in need of SAR services.

Considerable time and resources are also invested each year in public education and awareness campaigns aimed at preventing SAR incidents.

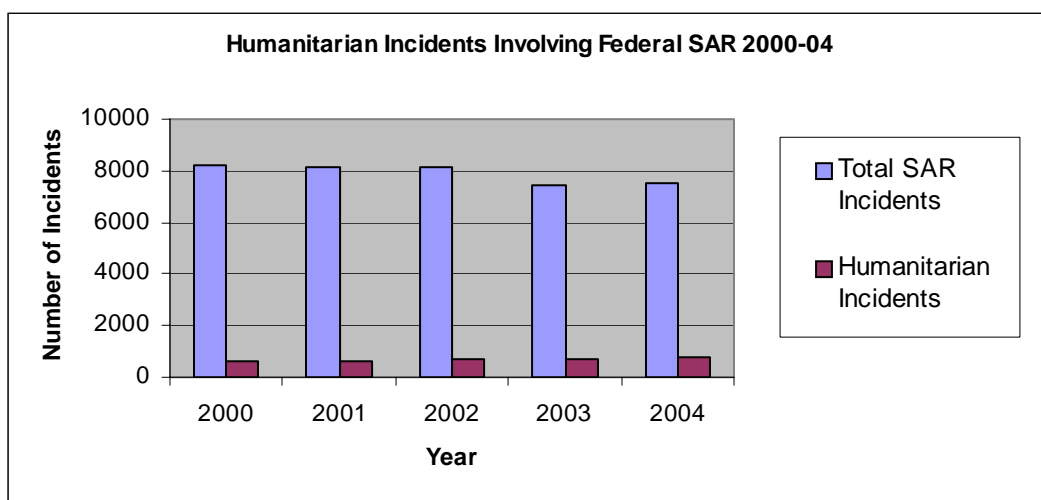
Furthermore, [provincial and territorial SAR](#) resources often provide an important complement to federal assets, because many aeronautical and maritime SAR cases require the assistance of land-based resources. For example, a JRCC may ask local police to check remote airstrips for aircraft, or request the assistance of a [volunteer ground team](#) to search a marina or shoreline for an overdue vessel. This cooperation greatly increases the overall effectiveness of the National SAR Program, often allowing cases to be quickly resolved at the local level before a more expensive effort is required. Not only is the cost of searches reduced, but federal resources are more available to respond to more serious cases.

The federal government has direct responsibility for ground and inland SAR in Canada's national parks, military bases and training areas. In 2004, Parks Canada's public safety specialists responded to 201 SAR incidents, ranging from injured hikers to canoeists stranded by poor weather to skiers caught in avalanches. These specialists also work actively to promote public safety and increase awareness of risks in backcountry areas.

The Canadian Forces maintain five ground SAR teams in support of flying operations at Air Force bases across the country. These teams primarily cover military training activities, but may also be tasked with assisting in aeronautical or marine cases. [The Canadian Rangers](#) – a skilled group of reservists in Northern Canada – also provide assistance to ground SAR operations in some of this country’s most isolated regions.

The federal government provides assistance to provincial and territorial partners who have the mandate for ground and inland water SAR. In 2004, a total of 748 requests for humanitarian assistance were responded to by the federal JRCCs. While most of these involved medical evacuation and transportation assistance, some were part of front-line SAR missions, often involving helicopter hoists from cliffs, glaciers, mountains and other challenging locations.

Figure 4 shows the number of such humanitarian-assistance incidents in which federal SAR organizations have been involved over the past five years. They represent approximately 8 per cent of federal SAR cases annually.



**Figure 4:** Humanitarian Incidents Involving Federal SAR 2000-04

## 5. Significant Incidents

During 2004, several federal SAR incidents occurred that became the centre of public attention. Some of the most prominent are described here.

In January, a single-engine Cessna Caravan passenger aircraft carrying ten people on board crashed through the ice on Lake Erie near Pelee Island. All those on board lost their lives. Canadian and U.S. helicopters, Coast Guard vessels and a Hercules C130 aircraft took part in the subsequent search and, later, the recovery of the aircraft containing the bodies of the deceased.

In September, the fishing vessel Ryan’s Commander, a modern trawler, capsized 9 kilometres east of Cape Bonavista, resulting in the loss of two fishermen. The incident was particularly notable for the bravery of the responding CF helicopter crew, who

landed on a nearby cliff top in appalling weather conditions to assist with recovery of survivors after their helicopter's winches became inoperable.

In the far North, a Lund open boat from Tuktoyaktuk with four people on board was reported on September 25 to be three days overdue from a one-day caribou hunt. Numerous resources, including a civil Cessna 206, a CG helicopter, a CF twin Otter, two CF Hercules, a USCG Hercules, a DFO Dash 7, a local RCMP boat and local community boats participated in the search. The search was terminated after nine days with neither the boat nor its occupants found.

## **6. The 2004 Program Plan: A Report Card**

This section of the Annual Report focuses on several important SAR issues, which were identified in the 2004 Program Plan as warranting program-level attention by ICSAR departments. Many of these issues reflect matters that are multi-year in scope, and will continue through subsequent years.

These issues all relate to these three [strategic directions](#), approved by ICSAR for the National SAR Program:

- Seamless SAR;
- The North;
- Maritime SAR;
- Volunteers.

### **Seamless SAR**

SAR operations, especially in large-scale incidents, routinely involve resources from more than one of the ICSAR organizations, along with provincial and territorial governments, municipal organizations and volunteer groups. Effective coordination and communication among these service providers presents challenges. To achieve a seamless SAR system, it is important that the response and prevention activities of all stakeholders be aligned and that equipment be interoperable.

### **Interoperability**

Although progress has been made on improving interoperability, there remain some gaps in coordination, communications, equipment and procedures. In 2003, the National Ground Search and Rescue (GSAR) Council of Canada recommended that the NSS carry out an Interoperability Feasibility Study relating to a national calling frequency for SAR. Throughout 2004, the NSS continued to facilitate progress on this pillar of seamless SAR delivery. A national working group on SAR radio communications was formed, comprised of federal, provincial and territorial SAR representatives and other stakeholders, such as Industry Canada. During 2004 the group's work led to the following results:

- A NIF proposal was approved for the [Communications Research Centre of Canada](#) to develop a software-defined radio prototype that would increase the interoperability of radio communications.

- A proposal was submitted to Industry Canada for the establishment of SARIAN F and CASAR F frequencies for SAR activities.

### **Multi-Jurisdictional Exercises (MJX)**

Exercises that involve several authorities with differing mandates and responsibilities are a vital way to advance interoperability. MJX help organizations develop knowledge of and trust in one another. During 2004, a joint maritime exercise on Lake Erie simulated a major accident to a passenger vessel. The main active participants were the Canadian Coast Guard, the Canadian Forces, the [U.S. Coast Guard](#), regional police forces from both sides of the border and both U.S. and Canadian Coast Guard Auxiliary units. Other civil authorities and organizations also participated.

### **SAR Alerting by Cell Phones**

Cell phones are increasingly being used to alert responders of SAR incidents via the 9-1-1 service. However, cell phones cannot always be relied upon as a means of SAR alerting.

Call centres receiving these alerts are operated by a variety of police and municipal authorities in different parts of the country. Some of these local authorities do not have direct links to, or even knowledge of, the role of the Joint Rescue Coordination Centres (JRCCs). This lack of knowledge can delay effective SAR responses. Furthermore, in remote areas, cell phone coverage is not always available.

Nevertheless, other, more reliable, means of alerting are often ignored. Appropriate alerting equipment such as an [EPIRB \(Emergency Position Indicator Radio Beacon\)](#) or a [PLB \(Personal Locator Beacon\)](#) has the advantage of being able to pinpoint a person's precise location.

Throughout 2004, efforts continued to educate the public about acquiring and properly using appropriate SAR communications equipment, such as marine-band radios for boaters. In addition, the NSS continued to work with 9-1-1 call-centre umbrella organizations to improve the links between these centres and the JRCCs.

### **SAR Data Availability and Quality**

Inconsistencies in how SAR data is collected make meaningful comparison of information and statistics difficult. New and different information systems to track SAR incidents, resources, outcomes, costs and other data are being planned and implemented, including those at the JRCCs, Parks Canada and the RCMP.

The introduction in 2003 of the Search Mission Management System (SMMS) at the JRCCs/MRSCs has enhanced data collection. Improvements to this system were made throughout 2004.

### **New SAR Helicopter Introduction**

The replacement of the CH-113 Labrador helicopter with the CH-149 [Cormorant](#) as Canada's SAR helicopter is now complete. In the summer of 2004, the last operational



Labrador helicopter flight took place when Labrador #301 was delivered to the Canadian Aviation Museum in Ottawa.

The Cormorant represents an increase in operating capability over its predecessor. It can conduct operations in certain types of weather conditions that the previous generation of aircraft could not, and it offers range and cruise-speed improvements as well as the ability to carry more people and equipment.

There are significant differences between the two helicopters in size and rotor configuration, which affect personnel working on the ground in proximity to the aircraft. The Canadian Forces has instituted a comprehensive Cormorant training program for its personnel, which has continued throughout 2004. However, until all SAR responders have had a chance to become familiar with the new helicopter and its features, some inherent risks will remain. Efforts have begun to ensure that the broader SAR community working with the Cormorant understands the different characteristics of the new aircraft, as well as the safety measures required when using it.

## **The North**

Canada's north is vast, sparsely populated and characterized by extreme environmental conditions. Increasing activity levels in the region – particularly those related to tourism and resource extraction – have led to new challenges in responding to distress incidents in this part of the country.

### **Increasing Aviation Activity**

The amount of aviation activity in remote Northern Canada continued the rising trend of recent years, including both domestic activity (mostly associated with resource extraction and tourism), and international activity (mostly associated with the broader use of polar routes serving Asia).

The Major Air Disaster Plan (MAJAID) from 1 Canadian Air Division focuses on the delivery of aid to a remote crash location, incorporating all necessary and available military assets as well as links with other federal departments, with the province/territory involved and with the affected airline. In 2004, MAJAID saw completion of the Arctic Cache Project. Six caches, consisting of cold-weather survival clothing, sleeping bags and other supplies, were acquired with assistance from the New Search and Rescue Initiatives Fund (NIF, described in section 7) and delivered in 2004 to Rankin Inlet, Resolute Bay, Inuvik and Whitehorse.

During 2004, Canadian Forces SAR Officers attended the [Canadian Aviation Safety Seminar \(CASS\)](#) and met with airline-industry crisis management officials regarding MAJAID and SAR in the North. In addition, the National SAR Program was represented at the [International Air Transport Association \(IATA\)](#) Crisis Management Meetings, where it provided an outline of MAJAID. A document for use by IATA member airlines' emergency response planners was provided, and attendance by the IATA Emergency Response Planning Working Group (ERPWG) at major Arctic SAR exercises was encouraged.

## **Arctic Communications**

Communications in the Arctic are inherently difficult.

Those relying on traditional radio equipment are likely to encounter significant gaps in coverage. As a result, notification of incidents and their locations may be delayed, and communication among responders, ground facilities and distress victims may be hampered, reducing the effectiveness of response activities and of incident coordination.

However, increasing coverage of satellite communications systems in the higher Arctic latitudes has begun to improve the situation. For example, a new northern-based company, Inuit Nunaani Wireless Inc. (INW), has produced a system for tracking, monitoring and two-way communication that is based on Global Positioning Systems and satellite communication technology (GPS/SATCOM) and is suitable for installation on snowmobiles and other small, Arctic-friendly modes of transport.

## **Maritime SAR**

Maritime cases accounted for approximately 76% of the incidents that federal SAR organizations responded to in 2004. The 2004 opening of Canadian Coast Guard Stations Bella Bella and Sandspit, in Pacific Region, and Havre St-Pierre and Rivière au Renard, in Quebec Region, completes the implementation of the eight new SAR stations announced by the Canadian Government in 2000. The existence of these four new stations will greatly improve the Coast Guard's SAR response capability for these areas.

## **Large Passenger Ship Activities**

A significant number of cruise vessels operate in Canadian waters. These vessels are large and, by design, safe. Nevertheless, no ship is invulnerable; the possibility of a serious accident befalling a cruise ship with perhaps 2,000 people on board remains a serious risk for the Canadian SAR system, particularly if it occurs in a remote location. The principles for dealing with large numbers of people in distress at sea are the same whether the ship is a cruise vessel or a ferry – a generic plan can cover both eventualities.

Development of Major Marine Disaster Plans (MAJMAR) continued in 2004 at an NSS-sponsored workshop in February, which was aimed at producing a standard framework on which each SAR Region in the country could base its MAJMAR planning. Representatives from every Canadian rescue centre concerned with marine SAR attended, along with headquarters representatives of both the Canadian Coast Guard and the Canadian Forces. The framework agreed upon at this workshop was implemented and the revision of regional plans was begun.

## **Medium Passenger Ship and Tour Boat Activities**

The number of whale-watching and marine eco-tours offered in Canada is increasing. Typically, this industry uses small vessels with high passenger-to-crew ratios. The tours are short, generally lasting only two to four hours.

The short duration of these tours means that passengers are less likely to become familiar with the vessel and its emergency equipment and procedures. These factors

represent an increased risk of loss of life in the event of an incident. As an example, the passenger-to-crew ratio on an ocean-going cruise ship is about 2 to 1, whereas on board a day-cruise vessel it can be as high as 50 to 1.

### **Small Pleasure Craft and Kayak Activities**

In 2004, 70% of marine SAR incidents involved pleasure craft. The extensive use of small boats by Canadians makes them a prime area of concern for SAR authorities. The results of a coroner's inquest in 2004 into the loss of four Girl Guides in Georgian Bay highlighted the need for improving preparedness for the unexpected among amateur boaters.

### **SAR Prevention Activities**

The SAR Prevention Working Group, which is composed of representatives of federal, provincial/territorial and major volunteer groups, met at the 2004 SARSCENE workshop in Calgary, Alberta. At that meeting, the NSS established, as a pilot project for one year, an Extranet for members of the working group and other parties interested in SAR prevention work. The aim is to enable the discussion and coordination of prevention activities. The Extranet site has been visited extensively since its inception, but has not yet reached its full potential.

### **Fishing Vessels Further Offshore**

Data indicates that over half of all maritime accidents reported by the [Transportation Safety Board](#) (TSB) involve fishing boats. In the Atlantic Region, these boats are now fishing further offshore as traditional fish stocks closer to the coast are exhausted or restricted. Boats designed for coastal fishing may be at increased risk further from the coast.

Longer response times for SAR resources, combined with longer transit times back to port for vessels avoiding bad weather, represent an increased risk of loss of life. The larger the average distance that SAR resources must travel, the longer the time before they are again available to the SAR system and the greater the risk in the event of concurrent incidents.

Regulatory and SAR response authorities continued to focus on fishing vessel safety to address this issue.

## **7. Other Results**

### **New SAR Initiatives Fund**

The New SAR Initiatives Fund (NIF) has an annual budget of \$8.1 million to enhance SAR in Canada. The NSS manages the Fund, on behalf of the Lead Minister for SAR, in partnership with federal managing departments and provincial and territorial recipients, and works with them to manage and monitor program success and report results to Canadians. Since the program began in 1988, the NSS has managed more than \$185

million invested in over 750 projects. The NIF is accessible to all Canadian SAR organizations through ICSAR organizations and provincial/territorial partners.

The NIF budget for fiscal year 2004-05 was \$8,537,000, comprising the annual \$8.1 million plus \$437,000 that was approved for rollover from 2002-03. In 2004-05, 43 new projects were approved, while 55 projects continued from previous years.

In accordance with the Government of Canada's initiative to strengthen financial management and comptrollership, work was begun in 2004 to renew financial management and authorities for NIF.

NIF representatives presented several successful projects at the *SARSCENE* 2004 workshop. The NIF website was also expanded. The NIF Final Report communicates the results to the public and shares lessons learned. In 2004, the report documented results of 25 projects that were completed in 2003-04.

### **COSPAS-SARSAT**

Canada is one of the founders of COSPAS-SARSAT, the international satellite system for SAR, and is still a major user and equipment supplier for this system. The NSS represents Canada's interests in the COSPAS-SARSAT system from a program perspective. The Department of National Defence operates Canada's Mission Control Centre and provides maintenance and testing for the system, including engineering and design work for flight instruments. Industry Canada's Communications Research Centre provides technical support to the program.

In 2004, the NSS led the Canadian delegation to four international meetings, which were held in Japan and the United Kingdom. Negotiations for the relocation of the COSPAS-SARSAT Secretariat to Montreal were finalized in 2004. The NSS also represented Canada's interests at technical working group meetings to discuss ongoing evolution in the beacon industry.

All of Canada's Low Earth Orbit Local User Terminals (LEOLUTs) have now been replaced and recommissioned; they reached operational status early in 2004. The new LEOLUTs are located at Edmonton, Churchill, Goose Bay and Ottawa. Canada also has new Geostationary Earth Orbit Local User Terminals (GEOLUTs) in Edmonton and Ottawa, both of which are commissioned and operational. Canada's Mission Control Centre and backup site are available 24 hours a day, seven days a week.

### **Beacon Registry**

Emergency beacons are part of the COSPAS-SARASAT system, which provides a rapid alert that can trigger a response to emergencies that occur in the air, on the sea or on land. Beacon information is held in the Canadian Beacon Registry, which is maintained by the NSS for use in SAR operations. The registry contains basic owner information that enhances response time to incidents and often eliminates unnecessary responses to misuse of beacons or false alerts. By the end of 2004 there were 8,865 beacons on the Canadian Registry. Beacon owners can register, or update their information, over the Internet at <http://beacons.nss.gc.ca>.

## **Directory of Canadian SAR Organizations**

The [Directory of Canadian Search and Rescue Organizations](#) on the NSS website is a primary source of information about the skills and resources of groups that perform SAR activities in Canada. As of 2004, this directory provided the public with access to more than 600 government and volunteer organizations.

## **SARSCENE Workshop**

The annual workshop brings together over 600 SAR professionals, paid and volunteer, from across Canada and around the world to share information and best practices and to build a sense of community and cooperation. The 2004 workshop, held in Calgary and co-hosted with the Search and Rescue Association of Alberta, included 60 presentations on topics such as leadership and training, technology and innovation, NIF projects, volunteers, international SAR and prevention projects. The event also included a trade show in which some 60 exhibitors took part.

## **SAR Games and Demonstrations**

In 2004, Toronto's Heavy Urban Search and Rescue (HUSAR) team won a very close race for first place in the annual SAR Games in Calgary. The events included emergency-scene management and first aid, visual search effectiveness, search management, evidence search, navigation and skills relay. The following organizations provided air SAR demonstrations or displays: the Calgary Police Services Air Unit, the Calgary Fire Department, Alpine Helicopters, Alberta Parks and Protected Areas, Kananaskis Country, the Canadian Forces CH-115 Buffalo, Calgary's urban SAR and aquatic rescue teams, the Amateur Radio Emergency Service, the RCMP Air Division and the Shock Trauma Air Rescue Society (STARS).

## **SARSCENE Magazine**

SARSCENE Magazine, Canada's only magazine for all aspects of SAR, is published online by the NSS three times a year. In 2004 it published over 50 news items and 35 features, including profiles of SAR units, coverage of SAREX 2004 in Comox, B.C., items on the SARIAN-F radio frequency project and the SMMS system used at Joint Rescue Coordination Centres, and reports on NIF projects.

The magazine's email alerting service, which lets subscribers know when a new edition is available, continued to grow in 2004.

## **Awards Program**

SAR providers from across the country are recognized each year by the NSS for their courage and dedication through the annual [SAR Awards Program](#). The 81 recipients to date have made significant contributions to search and rescue in Canada.

[Frank Whitecotton](#), of Logan Lake, B.C., was the recipient of the 2004 Outstanding Search and Rescue Achievement Award for his tireless efforts in establishing training programs and his unwavering commitment to SAR, which continues to inspire new generations of volunteers.

Six other individuals received [Certificates of Achievement](#) in 2004:

- Sergeant Don Bindon, Vancouver, B.C. (RCMP);
- Harry Blackmore, Paradise, Nfld. (Newfoundland and Labrador SAR Assoc.);
- Don Burgess, Surrey, B.C. (Surrey SAR Soc.);
- Sergeant Mike Cook, Edmonton, Alta. (Edmonton Police Service);
- Sergeant Don Limoges, Penetanguishene, Ont. (CCGA);
- Captain John Palliser, Victoria, B.C. (Canadian Coast Guard).

## **8. Accountability and Risk Management**

### **Accountability and Risk Management Framework**

The National SAR Program monitors program issues through an Accountability and Risk Management Framework that was approved by the Interdepartmental Committee on Search and Rescue (ICSAR) in December 2004. The framework enables National SAR Program managers to assess and monitor new and ongoing challenges and risks. It combines the National SAR Program Management Framework and operational SAR guidance with accountability and risk monitoring elements that allow for developing risk mitigation strategies for emerging issues, as well as for prioritizing existing and new challenges.

The following are the National SAR Program key risk areas that were identified:

- Changing government priorities;
- Horizontal program management;
- Interoperability;
- Sustainability of volunteer SAR organizations;
- SAR events that go wrong.

A multi-year audit and evaluation plan supporting this accountability and risk management framework was approved by ICSAR in December 2004.

### **NIF Project Audits**

To ensure due diligence and to be able to provide senior management with the confidence that the funds are being spent wisely, the NSS audits a selection of NIF projects each year. These audits help ICSAR to better manage the NIF program and to identify risks and priorities for auditing in subsequent years. In 2004, audits were completed on five NIF projects, with findings focusing mainly on project reporting and communications. Reports of these audits are available at the [NSS website](#).

## **9. Conclusion and Next Steps**

Search and rescue is about saving lives: managing prevention programs to prevent people getting into trouble in the first place, and providing seamless response services to help them if they do. Canada has major SAR challenges, such as a vast area of

responsibility, a harsh climate, a low population density and limited resources. Yet our SAR system is among the best in the world. This success results from our organization, our technology, our equipment and, most of all, our people: governments at all levels, non-profit organizations, the private sector and thousands of volunteers working together to save lives.

The Interdepartmental Committee on Search and Rescue is committed to working with the broad SAR community to provide seamless SAR throughout Canada, and to continue to improve both planning for the future and reporting to Canadians on the results achieved.