



Indian and Northern
Affairs Canada

Affaires indiennes
et du Nord Canada

WHAT'S HAPPENING

in the Sahtu Settlement Area?

Contaminated Site Remediation

2010 in Review

Contaminated Sites in the Sahtu Settlement Area

The Contaminants and Remediation Directorate (CARD) of Indian and Northern Affairs Canada (INAC) is currently managing over 30 contaminated sites in the NWT. These sites are at various stages of the remediation process.

A number of contaminated sites have been identified in the Sahtu Settlement Area. These sites are assessed and remediated based on level of concern. In 2010/11, INAC visited 18 sites in the region to identify potential hazards and to gauge the level

of concern. Many high priority sites are abandoned mines located within the Deline district. The following sites were identified by INAC and the Sahtu as priority sites for remediation to allow, to the extent possible, renewed traditional use of the areas.

• This map is intended for general information only. It is neither a technical reference tool, nor a legal document. INAC will not be held liable for any errors or inaccuracies.

10 Step Process

In 1999, the Contaminated Sites Management Working Group (CSMWG) released the document *A Federal Approach to Contaminated Sites* outlining a 10 step process for addressing a federal contaminated site. These guidelines were developed to ensure there would be a common approach to the management of contaminated sites.

For more information on the 10 step process, please visit www.ainc-inac.gc.ca/ai/scr/nt/cnt/cln/fcsap/fcsap-10/index-eng.asp.

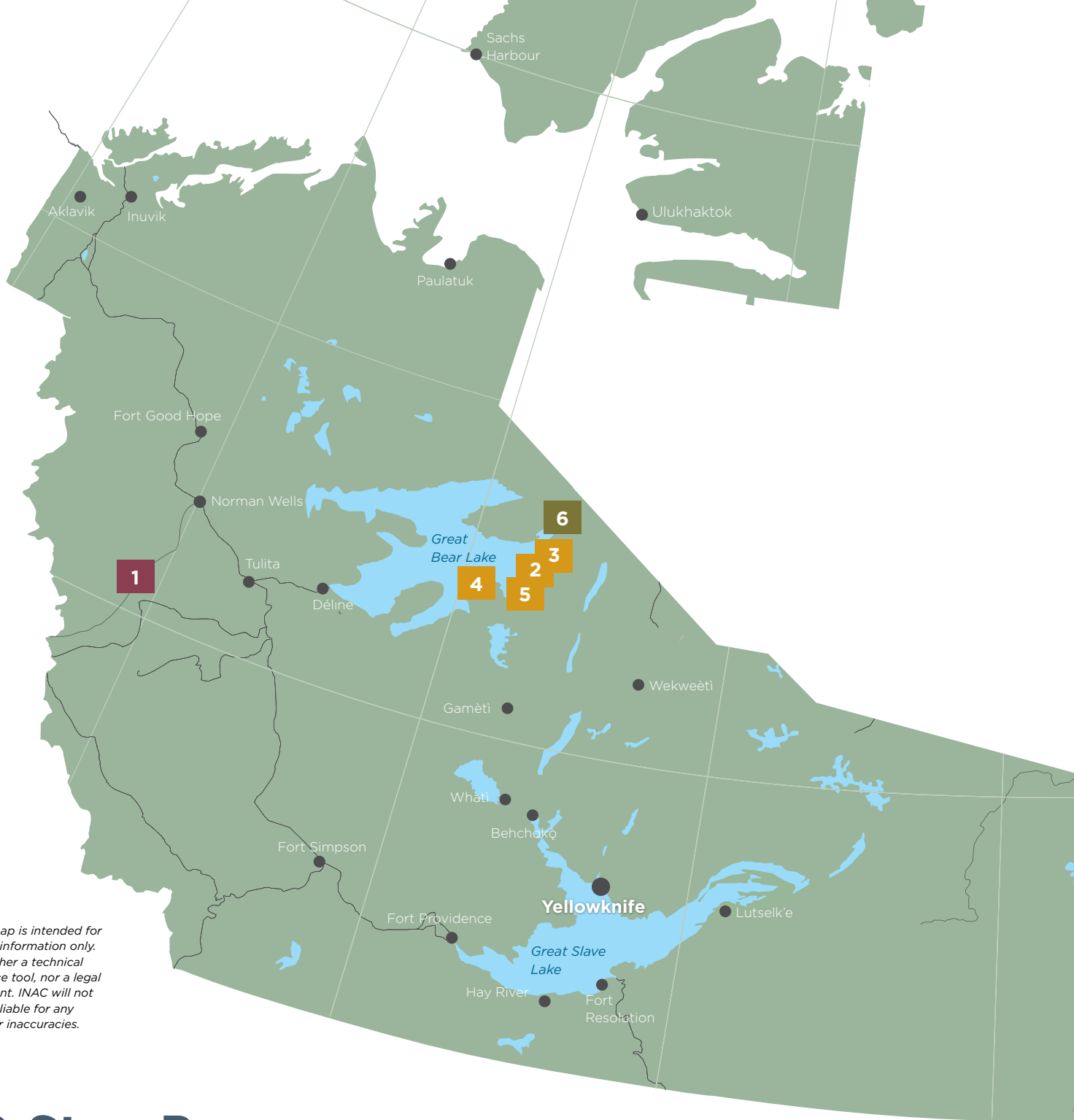
LEGEND:

Assessment Phase
Steps 1 to 7

Remediation Phase
Steps 8 and 9

Complete / Monitoring
Step 10

- 1** Canol Trail
- 2** Contact Lake Mine
- 3** El Bonanza Mine
- 4** Sawmill Bay
- 5** Silver Bear Properties
- 6** Port Radium Mine



Sites in the Sahtu Settlement Area

1 Canol Trail

The Canol Trail was part of the CANOL (Canadian Oil) Project, a cooperative effort between the United States and Canada during World War II to ensure a continuous supply of oil from Norman Wells, NWT to American Forces stationed in the Pacific. Oil flowed along the route to Whitehorse starting in April 1944, but one year later, the entire project was abandoned. Although several salvage operations were conducted, remnants of the project lay strewn along the NWT portion of the trail.

CONCERNS AT THE SITE

- Hydrocarbon contamination
- Asbestos-containing materials
- Crude oil storage and separator tanks
- Lead-containing paint
- Hazardous fluids and materials associated with abandoned vehicles
- Physical debris such as old buildings and bridges, drums, communications wire, abandoned pipeline and rusty vehicles

REMEDIATING THE SITE

Due to the complexity of the site, the assessment and remediation of the trail is a long-term initiative that will likely take five to 10 years to complete. Between 2007 and 2009, INAC conducted an aerial and ground review of the entire Canol Trail and compiled an inventory of abandoned waste materials and areas of potential contamination. Initial Environmental Site Assessments (Phase II ESAs) were performed at nine sites along the Canol Trail in 2009 and a further 18 sites in 2010.

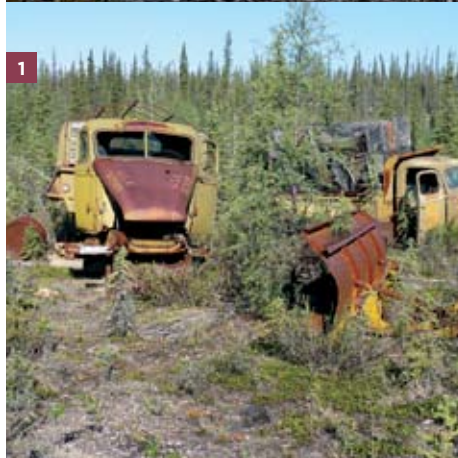
FUTURE PLANS

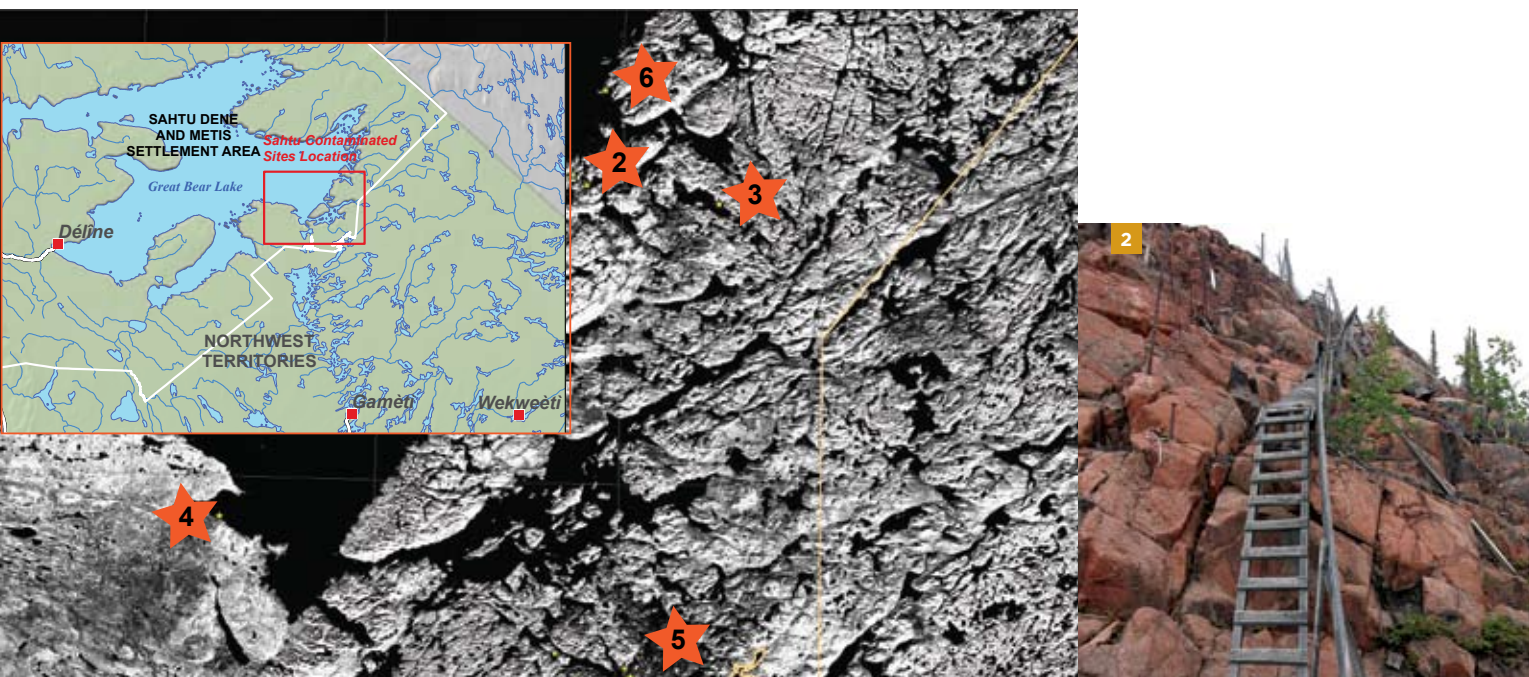
The results of the assessment will be examined in 2011/12 to evaluate the

current understanding of conditions along the trail. These results will help guide detailed (Phase III) investigations which will be undertaken in future years.

An Assessment and Remediation Working Group has been established to facilitate communication of the project's progress and to engage with key stakeholders to ensure all interests are identified, discussed, and managed using an acceptable approach. Remedial options will be evaluated through consultation with the Government of the Northwest Territories (GNWT), local communities and organizations and the trail's heritage value will be taken into account throughout.

The GNWT has a commitment through the Sahtu Dene and Métis Comprehensive Land Claim Agreement to develop the Canol Heritage Trail as part of the proposed Doi T'oh Territorial Park. Since the majority of the Canol Trail is on Crown Land, a land transfer agreement between the Crown and the territorial government is required prior to park development. Talks between INAC and GNWT senior management are on-going regarding site remediation and future land transfer requirements.





Great Bear Lake Sites

The majority of contaminated sites to be remediated in the Sahtu are located in the eastern region of the Great Bear Lake area. The Great Bear Lakes project is a compilation of the Silver Bear Properties, Contact Lake, El Bonanza/Bonanza and Sawmill Bay as described below.

2 Contact Lake

The Contact Lake Mine is a former silver and uranium mine located on Contact Lake. The Contact Lake Mine is much smaller than the Silver Bear Mines but still has environmental concerns.

CONCERNS AT THE SITE

- Waste rock and processed tailings deposited downslope of the mine site, located in and around a small tailings pond
- Elevated levels of metals in surface waters limited to the tailings pond
- Old buildings, mine structures and openings on the site that pose safety hazards
- A fuel storage site associated with the mine located in the east arm of Echo Bay, approximately five kilometres away by road ■

3 El Bonanza/Bonanza

The El Bonanza and Bonanza sites are former silver mines located on the Dowdell Peninsula on the eastern end of Great Bear Lake. The El Bonanza/Bonanza Mines are relatively small and have limited environmental concerns associated with the sites.

CONCERNS AT THE SITE

- A limited amount of soil containing hydrocarbons
- Drums of diesel
- Waste rock extending into Silver Lake
- Old buildings, mine structures and openings on the site that pose safety hazards
- Scrap metal and general debris ■

JULY 2011

Completion of waste consolidation and fuel disposal at Sawmill Bay, Contact Lake and El Bonanza (remediation Phase I)

JULY 2011 – FEBRUARY 2012

Tendering process for the remaining work at Contact Lake, El Bonanza and all remediation work at Silver Bear

SUMMER 2012 – 2016

Carry out remediation of Contact Lake, El Bonanza and Silver Bear (remediation Phase II)

2016 – 2018

Carry out remaining remediation at Sawmill Bay (remediation Phase III)

4 Sawmill Bay

The Sawmill Bay site was originally developed to support timber requirements for the Port Radium mine and is located on the northern part of the Leith Peninsula on the eastern end of Great Bear Lake. The Sawmill Bay site is a relatively small site compared to the Silver Bear Mines but has historical significance as part of the uranium ore transportation route from Port Radium.

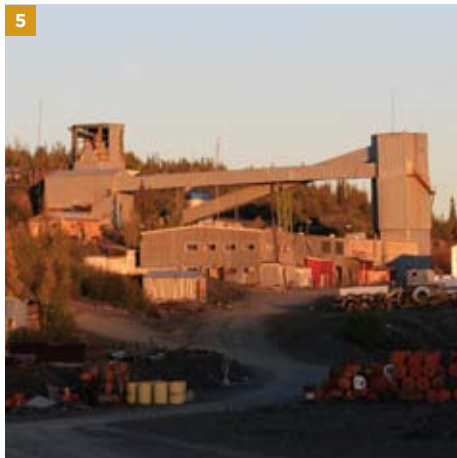
CONCERNS AT THE SITE

- Approximately 12,000 abandoned barrels from various site users
- Small amounts of hydrocarbon and asbestos residue
- Old buildings, scrap metal and general debris
- Approximately 1,500 m³ of uranium ore-contaminated soil

From the mid 1940s Sawmill Bay was used as a uranium ore transfer. Spillages during transfer operations resulted in the contamination of a few small areas of the site. Licensable

material associated with these operations was removed from the site during a 1997 clean-up led by the Low-Level Radioactive Waste Management Office (LLRWMO) for Office of Natural Resources (NRCan). The remaining contaminated soil at the site is at concentrations marginally above what uranium occurs naturally in soil at the site. The site continues to be the responsibility of the federal government.

INAC and NRCan continue to work together to make sure remaining clean-up efforts at Sawmill Bay are coordinated. ■

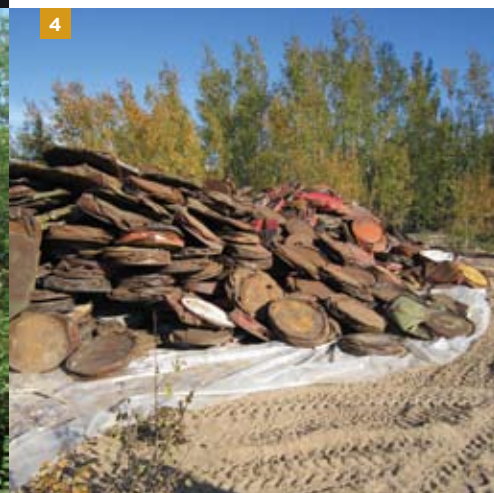


5 Silver Bear Properties

Silver Bear Properties is a collection of former silver, copper and bismuth mines located in the Camsell River area. Terra, Northrim, Norex, Graham Vein, and Smallwood make up the Silver Bear Properties. Terra Mine is the main Silver Bear site and has a large camp and mill complex. Ore was processed and tailings were deposited into the HoHum tailings pond. There is also a group of large fuel tanks that led to significant fuel contamination in the soil.

CONCERNS AT THE SITE

- Elevated levels of metals in surface waters in some waste rock and two tailings ponds, including HoHum Pond at Terra Mine and Hermandy Pond at Northrim
- Hazardous waste materials including asbestos, lead paint, residual mill reagents and waste fuels
- Hydrocarbon contaminated soils associated with past fuel handling activities
- Old buildings, mine structures and openings that pose safety hazards ■



Remediating the sites

A three-phased approach to the remediation of the Great Bear Lake sites was developed in consultation with Sahtu (Déḻne) and Tłı̨chǫ community representatives.

Phase I

- Began in 2010 after receiving the necessary permits from the Sahtu Land and Water Board
- Included building demolition, barrel inspection/consolidation as well as consolidation of surface debris at Contact Lake, El Bonanza/Bonanza Mines and Sawmill Bay
- 8,235 barrels crushed at Sawmill Bay

The remaining work of the Phase I remediation project includes cleaning and crushing the remaining barrels at Sawmill Bay and clearing trails at Contact Lake and El Bonanza. The Phase I work will be completed by July 2011.

Phase II

The remediation of the Silver Bear Properties and remediation of the remaining items at Contact Lake and El Bonanza/Bonanza will take place during Phase II of the Great Bear Lake sites remediation project which is expected to go to tender in the summer of 2011 and be awarded in early 2012.

The work will include:

- Construction of a non-hazardous waste landfill at Silver Bear (Terra site)
- Complete removal and/or collection of hazardous material and shipment off-site to a licensed facility (with the exception of asbestos)



- Building demolition and collection of non-hazardous debris and placement in the landfill (including asbestos)
- Closing/capping all mine openings
- Covering and/or removal of exposed tailings and acid-generating waste rock
- Excavation and treatment of hydrocarbon contaminated soils
- Wetland and dam enhancements at the Terra site

Work will begin based on the successful contractor's schedule; it is anticipated that this could be as early as the summer of 2012.

Phase III

Phase III, the final phase of remediation of high priority sites, includes the remaining items at Sawmill Bay (e.g. fuel contamination in the soil, building demolition), and is expected to be tendered once Phase II has been completed. The work on this site will likely take one to two years to complete. ■

6 Port Radium Mine

Port Radium was a former radium, uranium, and silver mine located along the eastern shore of Great Bear Lake, 440 km north of Yellowknife and 265 km east of the Dene community of Déḻne. The site was decommissioned to silver mine standards in 1982. Beginning in 2000, the site was reassessed and further studied, due to concerns raised by the community of Déḻne. All studies and recommendations on how to address the site were developed jointly by Canada and Déḻne. Remediation of the site was completed in 2007/08.

FUTURE PLANS

Long-term monitoring is a very important commitment in the Port Radium Remediation Plan. For the first four years of monitoring, environmental and engineering inspectors travel to the site twice a year to make sure that the site remains in a stable condition, and that remediation solutions are working. As well, water is sampled at the site once a year.



Community Involvement

Community involvement is an important part of the remediation process and engagement with members from the Sahtu Settlement Area has been on-going. During the environmental site assessment of the Great Bear Lake sites, community members assisted with sample collection and camp support services during on-site activities. They also took part in traditional knowledge studies and provided key information used to guide both the environmental site assessment and development of Remedial Action Plans.

The phased approach to the remediation of the Great Bear Lake sites was developed with Sahtu (Déḻne) and Tłı̄chǫ community representatives. When tendering the remediation package, an Aboriginal Opportunities Considerations package will be designed to meet the objective of maximizing local and regional employment and business opportunities.

This past year, INAC provided support to Déḻne for a community representative to job shadow the government on-site representative. Responsibilities included providing oversight for the Sahtu on the progress of work, and tracking the contractor's Aboriginal employment or contracting obligations.

Since 2006, INAC has provided support for the hiring of a Community Liaison in communities most affected

by remediation projects. The Community Liaison is responsible for keeping the community connected with the on-going remediation process and developing various programs. For the past few years, INAC has also held a science camp for junior high school students to share information on science techniques that are used to assess contaminated sites. In 2010/11, the science camp included various field trips and in-classroom activities. Field trips included completing a plant inventory, checking fish nets and/or fish hooks on the lake, and attending a caribou hunt. The students worked closely with Elders to learn various skills related to these activities.

The 2010/11 training program supported by INAC continued in the community of Déḻne, where residents attended an Environmental Monitor training program offered by Aurora College in partnership with the Building Environmental and Aboriginal Human Resources. There are many job prospects for the graduates in areas such as site remediation, environmental monitor/stewardship with diamond mines and other resource development companies, and with government.

INAC is committed to continue working with affected communities throughout the remediation of the Great Bear Lake Sites. ■

In the fifth year of the monitoring program, 2012, scientists will complete a more detailed study of the site. They will look at the health of fish in the Great Bear Lake area around Port Radium, as well as the plants and the soil. They will also examine sediments in Great Bear Lake close to the site and complete a gamma survey of the entire Port Radium site, to make sure that the radiation covers are working properly. ■



Northern Contaminants Program

photo credit: Paul Vecsei

The Northern Contaminants Program (NCP) was established in 1991 in response to concerns about human exposure to elevated levels of contaminants in wildlife species that are important to the traditional diets of northern Aboriginal peoples. Early studies found a wide variety of substances, many of which had no Arctic or Canadian sources, but which were, nevertheless, reaching unexpectedly high levels in the arctic ecosystem.

The NCP is represented in the Northwest Territories by a regional committee called the Northwest Territories Regional Contaminants Committee. The committee develops and coordinates research priorities for the NWT and its membership includes Aboriginal organizations, government departments and health boards. It provides information to the public about the presence and possible effects of contaminants and, in association with the Government of the NWT - Department of Health, information is also provided to the public on the risks and benefits of consuming traditional foods.

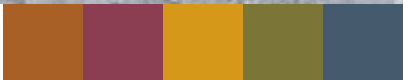
The NCP allocates funds for research and related activities in five main areas:

1. Human Health
2. Environmental Monitoring and Research
3. Community Based Monitoring and Research
4. Communications, Capacity, and Outreach
5. National/Regional/International Coordination and Aboriginal Partnerships.

Research in the Sahtu Settlement Area has included:

- Mercury levels in trout and walleye at Kelly Lake, Lac Ste. Therese
- Contaminant levels (Mercury, PCBs, Persistent Organic Pollutants) in burbot at the Rampart Rapids of the Mackenzie River.

For results or additional information on these subjects, contact the INAC NT Region NCP representative at (867) 669-2416. ■



**If you see a
contaminated site,
or have questions
about sites in your
area, contact us:**

Contaminants and Remediation Directorate

Indian and Northern Affairs Canada,
NT Region
P.O. Box 1500

Yellowknife, NT X1A 2R3

Phone: 867 669 2416

Fax: 867 669 2721

Email: ntcard@inac-ainc.gc.ca

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Retour sur 2010