A REPORT TO THE RESIDENTS – SPRING/SUMMER 2005

Fraser Basin Council

Thompson Region

HOW IS OUR REGION DOING?

A New Point of View

In January, 2003 the Fraser Basin Council released the first of its reports to the residents of the basin. The ***Snapshot on Sustainability*** contained a series of indicators that residents of the basin could use to measure their progress towards a sustainable Fraser Basin.

The sustainability indicators were general in nature and measured the performance of the basin as a whole. As a result, residents living in regions of the basin had difficulty relating those indicators to their circumstances.

The Thompson Regional Committee agreed that information more tailored to its portion of the basin would result in indicators that would be more readily understood by the residents of the Thompson Region. As a result, this report uses the same general indicators as the basin wide report, but uses more specific information to help you arrive at a deduction. The Thompson Regional Committee hopes that this approach will assist the residents of the area to determine how they impact on the region and assist them in addressing the areas they believe need improvement. Hopefully this will lead to informed and sustainable decisions in the future.

This report, because it is the first for this region, will set the base for the indicators and for future communications with the residents.

Throughout the report we have attempted to clarify all terms and acronyms used; furthermore, we have provided a glossary at the end of the report should you require further clarification.

Thompson Region

Inside this issue

PICTURED (L-R) – Thompson Regional Committee members Dave Pehl (Thompson Region Assistant Manager), Jodi Vander Hoek (Thompson Region Assistant Manager), Phil Hallinan (Thompson Region Manager), Joe Post (TNRD), Ted Bacigalupo (CSRD), Judy Guichon (Merritt), Marni Gillis (City of Kamloops), Kevin Taylor (Lillooet) and Greg Kamenka (SLRD). Regional Committee members also include Adrian Wall (DFO), Satwinder Paul (TRU), George Saddleman (ONA), Jen Fretz (City of Kamloops), Perry Redan (St'at'imc), Tom Coombes (CSRD), Ed Jules (SNTC), Dennis Lapierre (Falkland), Deborah Abbott (NNTC), Bob Smillie (Kamloops), Caroline Grover (Salmon Arm), Bob Ellis (Savona), Danielle Toperczer (Enderby), Bert Walker (North Thompson) and Micky Macri (SLRD).

What is Sustainability?

Sustainability is often described as a balance between economic, social and environmental considerations when implementing a decision. In theory this means that decisions made that impact the future should not be based on environment or economic results alone. It is not sustainable, for example, to continually approve subdivisions based on job creation without considering and addressing the loss of fresh drinking water from the sewage generated.

Sustainability also requires a change in approach by our institutions. BC Hydro is a good example of this type of change. Years ago Hydro was driven to harnessing any free flowing river in a search to develop more and more power. Today Hydro puts great emphasis on the efficient use of power with their Power Smart initiative. Government is another institution that can influence sustainability. Both the Federal and Provincial governments have influences that can impact sustainability, but community governments have the potential to implement change and work toward the solutions that will result in long-term sustainability. (Think globally but act locally).

Because of this local influence, we have tried throughout the document to reflect our region in its political divisions.

Our area has four Regional Districts, the biggest of which is the Thompson-Nicola Regional District (TNRD) followed by the Columbia Shuswap Regional District (CSRD). The remaining two, North Okanagan (NORD) and Squamish Lillooet (SLRD) have several electoral areas located within the Fraser Basin. We have attempted to reflect the statistics of only these areas in our report, rather than the whole regional district.

The most important influence on sustainability is you. Individuals can influence institutions, governments and corporations. You have to decide on your lifestyle and whether it can be maintained for future generations. You have to decide whether natural resources should all be harvested to support your goals. You need to decide to reuse or recycle your waste. You need to decide whether you need to change for future generations. We can only report on the results of your decisions.

ABORIGINAL AND NON-ABORIGINAL RELATIONS

The Sustainability Connection

Building fair and equitable relationships between Aboriginal and non-Aboriginal communities and governments in the Thompson Region, and reconciling issues of Aboriginal self-determination will allow for more certainty and stability on the land base. Among the key issues are meaningful consultation, accommodation and compensation, rights and title and the roles of parties other than the Crown. The creation of beneficial long-term partnerships through accommodation can increase the economic stability, security and capacity of Aboriginal communities. For example, one form of accommodation may be the creation of jobs or revenue sharing agreements between the parties involved that can result in improved economic conditions for both parties. Aboriginal band members usually support local business and are economic drivers of several small communities in the region.

Developing more constructive relations between our communities is critical to the sustainability of the region. The creation of communication channels between communities will allow for information and knowledge sharing that will lead to improved decision-making for all individuals and organizations. It is critical that Aboriginal and non-Aboriginal people, communities, corporations and governments work together to improve relationships through joint approaches, enhanced understanding and mutual respect.

Aboriginal and non-Aboriginal Relations Snapshot

- In 2004 a government-to-government protocol was signed between the province and the St'at'imc to discuss reconciliation of the provincial Lillooet Land and Resource Management Plan (LRMP) and the St'at'imc Land Use Plan.
- None of the Indian Act Bands in the region are currently participating in the treaty process.
- The First Nations Educational Steering Committee (1999) has improved the quality of education for Aboriginal students in the Kamloops-Thompson and Nicola-Similkameen school districts.
- The Joint Aboriginal Management Committee is administering a plan to create regional authorities for Aboriginal child and family services.

What are the trends and current conditions?

- Determining whether Aboriginal or non-Aboriginal interests control the majority of land within the Thompson Region is a very complex and complicated process that has led to much uncertainty. This has impacted management of the land as a resource, as well as the harvestable resources on the land base (water, timber, fish and wildlife, etc.) because of differing approaches to land management.
- For the above reason, cooperative solutions that avoid short-term market-based influences can be created through multi-party planning processes and Aboriginal agreements with governments and other parties to allow for improved management of land and resources.

Formal Agreements

- The St'at'imc Protocol was developed to discuss reconciliation of the provincial Lillooet LRMP and the St'at'imc Land Use Plan. The process was in its infancy in 2004, but the following topics will also be discussed in the future: the establishment of mutually beneficial ways to resolve issues and disagreements, the development and implementation of a common understanding of sustainability and stewardship, support for new arrangements to address land and resource activities and assistance in meeting lawful obligations, such as consultation and accommodation.
- A multitude of other formal agreements exist between Aboriginal groups, all levels of government and corporations in the Thompson Region. The majority of these agreements are focused on communications, information exchange, transportation, access to land and facilities, resource extraction, cross cultural training, cooperative and collaborative management and revenue sharing.

BC Treaty Commission Process

- Currently no Indian Act Bands in the Thompson Region are participating in the BC Treaty Commission Process.
- Instead, the Thompson Region First Nations have chosen to define recognition of their aboriginal rights and respect for their cultures and societies through processes such as agreements and partnerships.

Making Sustainability Happen

What are we doing?

- The First Nations Educational Steering Committee (1999) has improved the quality of education for Aboriginal students by granting more authority on and off of reserve lands regarding K-12 education, providing a new teacher's guide and textbooks and facilitating enhancement agreements at the school district level (Kamloops-Thompson and Nicola-Similkameen).
- The Joint Aboriginal Management Committee is currently administering a plan to create regional authorities for Aboriginal child and family services.
- A Protocol between the First Nations Summit (FNS) and the provincial Crown (September 2003-March 2005) was created to establish a policy forum from which recommendations can be referred to the FNS and the province of BC, develop a framework to discuss issues of reconciliation, facilitate interim measures related to the treaty process and create a partnership that will work on new approaches to improving the quality of life for Aboriginals before and after treaties are concluded.

TREE PLANTING, CAYOOSH PARK
(Bridge River-Lillooet News photo)

- Aboriginal health programs exist through regional health authorities and offer nursing mentoring, an Aboriginal mental health liaison and a culturally appropriate health guide.
- The Ministry of Community, Aboriginal and Women's Services' (CAWS) Aboriginal Youth F.I.R.S.T. Program provides leadership, employment and life skills training for both urban and rural youth through recreation and tourism activities.

What else can we do?

- Develop educational materials that discuss and raise awareness about Aboriginal history and the role of First Nations in the development of the province.
- Review legislation, both federal and provincial, that inhibits the full participation of Aboriginal people in society.
- Aboriginal and non-Aboriginal communities can extend invitations to one another if there are any events or planning sessions occurring that will impact their communities.

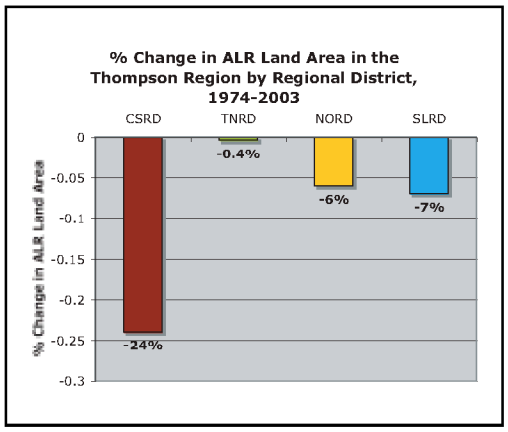
REFERENCES

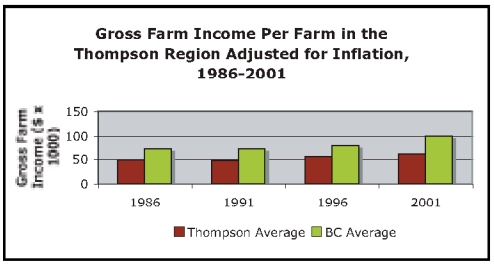
St'at'imc. Press Release: St'at'imc release Nxekmenlhkalha Iti Tmicwa, Part I: The St'at'imc Preliminary Draft Land Use Plan, July 30, 2004. http://www.statimc.net/

BC Ministry of Education. Aboriginal Education Agreements, 2004. www.bced.gov.bc.ca/abed/agreements/agreements.htm

Union of BC Indian Chiefs, 2004. www.ubcic.bc.ca

ROUNDUP TIME *(Marie Mervin photo)*





AGRICULTURE

The Sustainability Connection

An adequate, reliable and secure supply of quality food is vital to individual and community health. Security of land and resources for agricultural production is required for long-term sustainability of the agriculture industry.

Producing and buying locally grown food supports local economies and communities. Dependency on foreign food production can result in the loss of control over pesticide use, market value quality assurance and environmental impacts of transportation.

Agricultural practices have important positive and negative influences on water quality, air quality and fish and wildlife habitat. Maintaining the large land bases of the many ranches in the region is essential as they provide alternate habitats for wildlife and allow for natural filtering of water, which helps to ensure that groundwater quality is protected.

Agriculture Snapshot

- Approximately 33% of all of the agricultural area and 18% of all farms in the Fraser Basin are located within the Thompson Region.
- There have been net losses in Agriculture Land Reserve (ALR) land in all four Regional Districts in the region.
- Gross Farm Income (GFI) per farm was approximately $60,000 in 2001.
- Agriculture in the Thompson Region generated $400 million in economic activity from a total market value of farm capital greater than $1.3 billion in 2001.
- Water allocation between urban, agricultural, fish and wildlife uses has become a major issue.
- Both forested and grassland ranges are used for livestock production in the region, and are critical to the sustainability of the beef industry.

What are the trends and current conditions?

Area in Agricultural Production

- There are approximately 1,800 farms covering 424,000ha of land in the region (2001).
- The Thompson Region has the greatest area of agricultural production of all five regions in the Fraser Basin. Approximately 18% of farms in the Fraser Basin are located within the region.

Agricultural Land Reserve (ALR)

- There are numerous conflicts between farm and non-farm uses on the rural landscape, such as pressures associated with land speculation and development. Speculation may drive land prices up, resulting in significant incentives to sell farmland for non-farm uses such as development.
- In 1973, the ALR was created to protect farmland in BC. Regional Growth Strategies now attempt to provide an urban growth boundary around ALR land, which may prevent the conversion of farmland into urban area. Urban development is the most common reason for the loss (exclusion) of land from the ALR.
- There have been net losses in ALR land in all four Regional Districts in the Thompson Region, with a regional loss of 3% of total ALR land since designation in 1974. In three of the four Regional Districts losses were generally less than 10% of the initial lands designated. However, the CSRD has excluded nearly 25% of its original ALR land.
- Of all approved applications for exclusion of land from the ALR, local government applications accounted for more than 80% of the area. The TNRD was the exception in the region as it had more exclusion land granted to private applications than to local government.
- There are concerns regarding the quality of land that is being included in the ALR versus that which is excluded. For example, high quality land (class 1-3) may be excluded, while lesser quality land (class 4-7) may be included as compensation.

	TOTAL Class 1-3 area		TOTAL Class 4-7 area	
(ha)	**Excluded**	**Included**	**Excluded**	**Included**
CSRD	2715.8	264.8	14107.7	1090.7
NORD	973.3	220.5	736.9	941.2
SLRD	757.8	772	1701.9	136
TNRD	1722	580.9	1289.3	566.8

Gross Farm Income (GFI)

- GFI is defined as the monetary and non-monetary income received by farm operators.
- It is a good economic indicator because it is based entirely on farm receipts and is not influenced by outside sources of income such as part time business off the farm. The main components of GFI include cash receipts from the sale of farm products, government payments, value of food and fuel produced and consumed on the farm, rental value of farm dwellings, and change in value of year-end inventories of crops and livestock.[1]
- Average GFI per farm in 2001 was approximately $60,000 after adjusted for inflation.
- It is important to note, however, that GFI is the total income to the farmer before costs are deducted; therefore, it does not necessarily correlate with yearly profit because costs may increase at the same rate as gross income, which would hold profit relatively stable. Generally, GFI and GFI per farm are increasing in the Thompson Region.

Agriculture and the Environment

- As of 2001, the majority (53%) of farms in the region were greater than 29 hectares in size.
- In 2001, 69% of all farms in the region practiced one or more soil conservation practices.
- Approximately 1% of farms in the region are organic.
- Manure management is an issue in the interior with respect to the timing, frequency and rate of application onto the land base. The method of application, however, is irrelevant due to the relatively dry interior climate.
- Of farms reporting in the region, 46% use irrigation on their lands. Irrigation trends in the region have remained relatively stable between 1991 and 2001. Irrigation efficiency studies are currently underway, and have the potential to improve agricultural water conservation in the region.
- In 2001, 35% of farms reporting in the region used commercial fertilizer. However, this percentage has dropped slightly from 39% in 1991.

NEXT: Sustainability in Action

Sustainability in Action

What is being done?

- One Agricultural Area Plan has been developed in the region for the CSRD.
- The Ministry of Agriculture, Food and Fisheries (MAFF) has produced a series of water conservation fact sheets that provide information on farm water storage, irrigation scheduling techniques, water budget methods and conservation tips. http://www.agf.gov.bc.ca/resmgmt/publist/Water.htm
- The Strengthening Farming Program was established by the BC MAFF to improve links between local governments, provincial agencies and the farm community. Local examples are the District of Salmon Arm and Salmon River Watershed Land Use Inventories that used GIS to provide a broader understanding of agriculture, promote local agriculture and assist with land use decision-making processes. The watershed inventory has since led to an irrigation efficiency study on certain farms within the watershed.
- The BC Agriculture Council provides leadership and takes initiative in representing, promoting and advocating the collective interests of all agricultural producers in BC. One initiative of the Ag Council is the Environmental Farm Plan (EFP) program, with a vision for a sustainable agriculture industry in BC. www.bcac.bc.ca/efp_programs.htm
- The interior region has three representatives on the provincial Agricultural Land Commission (ALC). For information on the ALR contact Gordon Bednard (AGF), Craig Sobering (FOR) or Martin Collins (Planner) at (604) 660-7000. www.alc.gov.bc.ca/
- See also the 2004 State of the Fraser Basin Report: Sustainability Snapshot 2.

What else can we do?

- Adopt an Environmental Farm Plan (EFP) to help ensure productive, profitable and sustainable agriculture for generations to come. http://www.cattlemen.bc.ca/efp.htm
- Learn about and apply Best Management Practices to your farm operation.
- Encourage your municipality to establish an Agricultural Advisory Committee (AAC) and/or develop an Agricultural Area Plan.
- Educate yourself about invasive plants in your area and on your property and report the movement of these plants when observed.
- The non-farm sector can be educated to reduce their impacts on the agriculture industry (noxious weeds, recreational users, development, etc.).

REFERENCES

Agriculture Land Commission. ALR Statistics by Regional District, 1974-2003.

Statistics Canada, Census of Agriculture, 1986-2001.

Barry Smith. Agricultural Land Commission, Planning for Agriculture, 1998.

Statistics Canada. Farm Environmental Management Survey, 2002.

ADDITIONAL RESOURCES

1) Fraser Basin Council. Invasive Plant Strategy for British Columbia, 2004. For more information on invasive plants try: BC Ministry of Agriculture, Food and Fisheries (www.agf.gov.bc.ca); BC Ministry of Forests (www.for.gov.bc.ca/hfp/noxious/introduc.htm); and Regional Districts in your area.

2) Roy Cranston and David Ralph, BC Ministry of Agriculture, Food and Fisheries, Field Guide to Noxious and Other Selected Weeds of British Columbia (2002). http://www.agf.gov.bc.ca/cropprot/weedguid/weedguid.htm#regional

FOOTNOTES

1 – Agriculture Law dictionary, 2004. www.agriculturelaw.com/links/dictionaryg-l.htm

AIR QUALITY

The Sustainability Connection

Each of us needs to breathe clean air to be healthy, regardless of where we live. Without clean air we are at greater risk of respiratory diseases, heart attacks and strokes, which can decrease our quality of life. The treatment of these diseases can increase healthcare costs and cause high absentee rates in the work place, thereby increasing costs to industry.

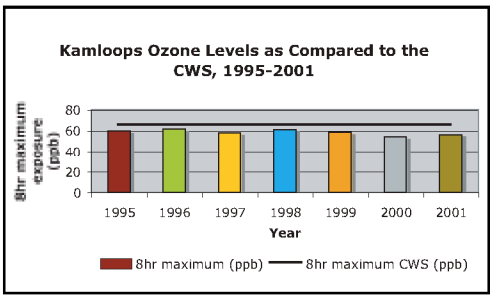
Fine Particulate Matter (PM) has been identified as the most serious form of air pollution in BC. Air pollutant concentrations can vary according to topography, air circulation patterns, air settlement patterns and the locations of industries. Influences on air quality can be realized far from their original source because air currents can transport particles over oceans and continents. Many activities can affect air quality in the Thompson Region. Industry, transportation energy consumption and escaped dust are three of the major contributors.

Air Quality Snapshot

- Air Quality in the region is only monitored in the City of Kamloops.
- Human-caused PM emissions are predominantly from the forestry sector and railways.
- Kamloops and Armstrong operate co-generation facilities that allow for reduced PM emissions.
- Ozone levels in Kamloops exceeded the Canada Wide Standard (CWS) in 1998, but were otherwise below the CWS between 1995 and 2002.

What are the trends and current conditions?

Due to the lack of monitoring stations in key municipalities in the Region (Merritt, Salmon Arm, North Thompson area), air quality trends will be illustrated using data from two Kamloops stations (Federal building and Brocklehurst), and are therefore not representative of the entire region.

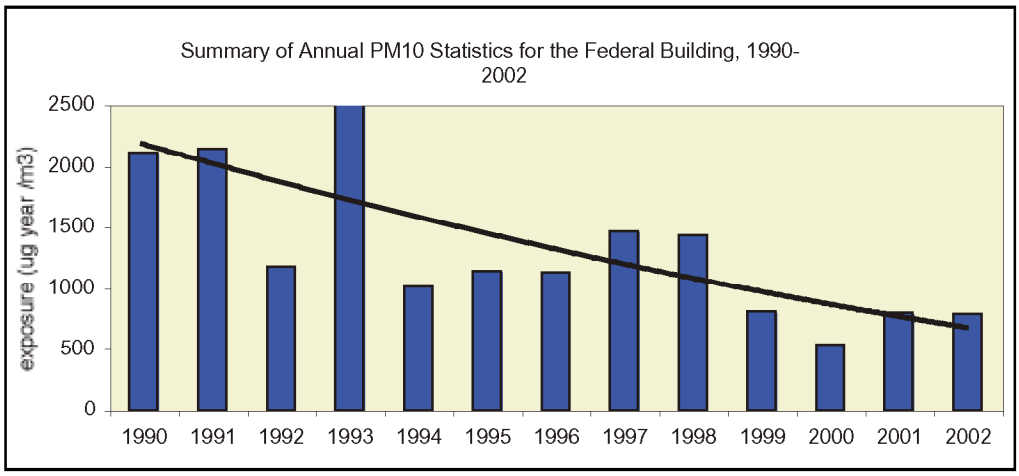


Particulate Matter

- In BC, air quality monitoring is based on PM10 and PM2.5 levels. PM10 refers to particles less than 10 micrometers in diameter, or 'coarse' particles. PM2.5 particles are less than 2.5 micrometers in diameter, or 'fine' particles. These particle sizes can be inhaled into the lungs.
- Natural sources of PM include forest fires, wind-blown soil, pollen, spores and bacteria. Human activities that emit PM include fossil fuel combustion, industrial processes, prescribed burning, and wood stoves (fine), and fugitive dust from roads, construction sites and agriculture (coarse).[1]
- In the Thompson Region approximately 60% of human-caused coarse and fine emissions are from the forestry sector. Railways account for a further 12% of coarse emissions and 14% of fine emissions.[2]
- On average PM10 levels are greater in the interior where slash burning, sawmill burners, woodstoves and fireplaces are commonly used.
- In the past, many sawmills within the region operated burners to eliminate their wood waste, however, almost all of the mills have now entered into co-generation agreements that involve using wood residues to generate power to displace purchased electricity.[3] This reduces PM emissions. In addition, any excess power that is generated through co-generation supplies the BC Hydro power grid in the region.
- PM10 exposure levels have generally decreased since 1998 and are holding fairly constant as of 2002. PM2.5 exposure levels have remained relatively constant between 1998 and 2002.

Ground Level Ozone (GLO)

- Ozone occurs naturally in the atmosphere. Nitrogen oxide and volatile organic compounds react with the atmosphere in the presence of sunlight to form GLO, which can damage lung tissue and cause irritation to mucus membranes, as well as contribute to lower food crop yields.
- Ozone levels in Kamloops exceeded the Canada Wide Standard (CWS) in 1998, but were otherwise below the CWS between 1995 and 2002.
- An Environment Canada survey in 2000 indicates that interior cities have higher levels of background GLO than coastal cities. Ministry of Water, Land and Air Protection (WLAP) ozone monitoring stations have consistently confirmed this fact, indicating a regional effect. High GLO levels in the Interior do not appear to be the sole result of human activity, but human sources do contribute to GLO levels.



- It should be noted that the CWS for GLO is 65ppb, and the Thompson Region is consistently between 57-60ppb. Increases in the population of interior cities, when coupled with climates that promote the creation of ozone (hot and sunny), could potentially raise the ozone level above the CWS.

Current Monitoring Conditions

- To date there is limited air quality monitoring in the Thompson Region.
- The CSRD has no monitoring stations.
- The SLRD has recently established two stations in Lillooet (mill and band lands) with funding from Health Canada and Indian and Northern Affairs Canada.
- The TNRD has 2 active monitoring stations in the City of Kamloops.
- Air quality records exist for Merritt from 1990-1995, but the monitoring station has since been abandoned. Kamloops and Armstrong are operating co-generation facilities. A co-generation facility also exists across the border in the USA (Okanagan). It is anticipated that in the next 5 years all burners will be decommissioned as mills choose to enter into co-generation agreements.[6]

Making Sustainability Happen

What are we doing?

- **Canada-Wide Standards (CWS).** Under the Canada-Wide Accord on Environmental Harmonization, the Federal and Provincial Ministers (with the exception of Quebec) agreed to establish Canada-Wide Standards for certain pollutants in the environment. The main focus of the CWS is on lessening the impact that both PM and ozone (O3) have on health and the environment.
- **BC Air Quality Objectives.** In 1995 BC established an additional air quality objective for coarse particulates of 50 µg/m3 as a 24-hour average, and a health reference level of 25 µg/m3 (24-hour average) to satisfy federal and international agreements.[4] Exceedence frequencies (%) refer to the frequency that particulate concentrations exceed both the BC air quality objective and health reference level, above which there is some certainty of increasing risks to human health.[5]
- Environment Canada has developed an air quality kiosk that focuses on current air quality research and science, associated health concerns and impacts from poor air quality and what individuals can do to help keep our air clean.
- Environment Canada has developed the National Pollution Release Inventory (NPRI), a legislated, nation-wide, publicly accessible inventory of information on annual releases of pollution to air, water, land and disposal or recycling from all sectors – industrial, government, commercial and others. The NPRI attempts to document pollution at the source. For the most part the NPRI appears to be voluntary, however information for participating communities can be found on the web at http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm.

What else can we do?

- Merritt would benefit from re-opening its former air quality monitoring station, which was closed in the mid 1990's and also from establishing a co-generation agreement.
- Limit open burning of slash and debris for industrial or residential purposes.
- Businesses can provide programs to support ride-sharing, public transportation, and bicycle commuting by employees. Individuals can walk, cycle, carpool or take public transit (when available) instead of driving alone.
- Maintain vehicles, including emission controls, to ensure they operate at peak efficiency.
- Railroads can replace their switch engines with new technology such as the Green Goat program.
- Switch to lower emission fuels such as eco-diesel or ethanol blended gasoline.

REFERENCES

BC Ministry of Water, Land and Air Protection, 2003. wlapwww.gov.bc.ca

Canada-Wide Standards for PM and Ozone, 2003.

Environment Canada. National Air Pollution Surveillance Network, 2002.

FOOTNOTES

1 – BC WLAP and EC. Particulate Matter in BC, May 2003.
2 – Ibid.
3 – BC WLAP. Report of the BC Climate Change Economic Impacts Panel, March 2003.
4 – BC WLAP. Air Quality Objectives for BC and Canada, 1995 (2004), http://wlapwww.gov.bc.ca/air/airquality/#7
5 – WLAP. PARTICULATE MATTER IN BC: A Report on PM10 and PM.2.5 mass concentrations up to 2000, http://wlapwww.gov.bc.ca/air/particulates/pmreport/
6 – Pers. comm. Ralph Adams, Environmental Protection, WLAP, Jan. 6, 2005.

ECONOMIC DIVERSIFICATION

The Sustainability Connection

A vibrant economy is part of the vision for a sustainable Fraser Basin. A sustainable economy is one that can meet the needs of the present by managing local, regional and global economic activities in a way that does not diminish opportunities for future generations. Economic diversity can allow for the protection of the environment without heavily impacting the income and economic activities of its citizenry. A diverse economy is one of the primary means of ensuring that changes in resources and activities can be adjusted to and managed efficiently. High levels of economic diversity allow for reduced vulnerability in the event of a decline in any one sector in a given period of time. Social problems related to adverse economic conditions such as poverty or unemployment may be somewhat alleviated in communities where there are more diverse economic opportunities. High levels of diversity can also result in complementary industries establishing themselves within a community.

A healthy economy helps to support many important public and private programs and services for region residents. The diversity of economic activities in a region will influence the scope and magnitude of environmental impacts and benefits in a region. For example, a more diverse economy may disperse economic impacts and benefits across many different components of the natural environment. This may help to ease the pressure on any single component such as forests or fisheries.

Economic Diversification Snapshot

- Ashcroft (76) rated the highest of 20 Fraser Basin communities on the provincial Economic Diversity Index (EDI).
- All but one area within the Region,[1] the North Thompson, exceeded 66 on the EDI scale.
- The North Thompson area was rated as the most forest dependent in the Thompson Region, followed by Merritt and Lillooet.

NEXT: Trends

What are the trends and current conditions?

Economic Diversity Index (EDI)

- The EDI is based on 11 dependency values, with after-tax income acting as its primary economic variable. The EDI accounts for the effect of population size on the resulting output.[2]
- The higher the EDI number (0-100), the more diverse a given community's economy is presumed to be. In general, diversity is probably good, but it is not a guarantee of economic prosperity; for example, a one-industry town that loses its industry will likely have increasing diversity as it struggles to avoid becoming a ghost town.[3]
- Communities within the Thompson Region generally have high levels of economic diversity, with Ashcroft (76) rating the highest of all 20 Fraser Basin communities computed.
- According to BC Stats, the EDI ratings generally lie between 50 and 75, so the fact that all but one area within the region[4] exceeded 66 is an indicator of good economic diversification within the seven communities studied in the Thompson Region.

Percent Employment by Industry Sector

- The top industry sectors in terms of employment in the Thompson Region are retail, healthcare and social assistance, manufacturing (food, wood product, and paper), accommodation, food services, and agriculture, forestry, fishing and hunting.
- These six industries together account for approximately 50% of all employment in the region.

Forest Vulnerability Index (FVI)

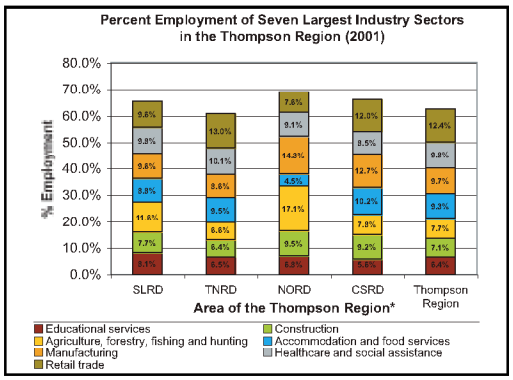
- BC Stats developed an FVI for selected local areas throughout the province, including seven communities within the Thompson Region.
- The FVI is dependent on the local area's income dependence on the forest sector and its economic diversity rating. A high FVI value (0-100) means that if forest sector activity in the area declines then the area will experience greater economic difficulties than other areas in the province would under the same circumstances.
- The North Thompson area was rated as the most vulnerable in the region, followed by Merritt and Lillooet.
- Salmon Arm and Kamloops were rated as the least forest-dependent of all communities within the region.

Sustainability in Action?

What are we doing?

- The FBC hosted the 'Mid-Fraser Economic Development Conference: Practical ideas and tools to make your business dream a reality' in Lillooet in March, 2004. The conference was developed to promote sustainable economic development in the mid-Fraser region, and it attracted speakers and delegates from the Fraser Canyon, the eastern Fraser Valley, Pemberton, the TNRD and the southern Cariboo.
- FBC and the Lillooet Spirit of BC Community Committee worked in partnership to deliver the March, 2005 Economic Development Conference, which identified various economic opportunities created by the 2010 Olympics.
- Lytton and Lillooet are in partnership with the Ministry of Sustainable Resource Management (MSRM) to develop a tourism strategy for the Lillooet Land and Resource Managemetn Plan (LRMP) based on the Canyon Lands Theme.
- The North Thompson recovery plan is working to diversify the area economy by identifying trails and other access points for summer and winter use.
- The Eight Peaks Sustainable Resource Management Plan (SRMP) is now being implemented. The plan increases economic diversification by creating tourism opportunities in the North Thompson area.

VISITOR INFORMATION CENTRE *(Jodi Vander Hoek photo)*



What else can we do?

- Governments, school districts and post-secondary institutions can help to educate and train a highly qualified and diversified labor force.
- Communities can attract new business development by supporting livable, sustainable communities and providing high-quality community services.
- As a consumer and investor you can support locally owned businesses in the region.

REFERENCES

BC Statistics. British Columbia Local Area Economic Dependencies, 2001.

BC Statistics. British Columbia's Heartland at the Dawn of the 21st Century, 2004.

FOOTNOTES

1 – Of the 7 Thompson Region communities involved in the 2001 analysis.

2 – BC Stats. BC Local Area Economic Dependencies, Descriptive Results for 2001.

3 – BC Stats. BC's Heartland at the Dawn of the 21st Century, 2001.

4 – Of the 7 Thompson Region communities involved in the 2001 analysis.

EDUCATION

The Sustainability Connection

Learning and personal development is a continuous, life-long process for all people in the Thompson Region. Higher education and learning can result in more informed decision-making, an important factor in helping individuals achieve their social, economic and environmental goals. Education is an important component of individual and community strength as it contributes to a person's involvement in their community and their understanding of sustainability. Higher levels of education are directly linked to higher income and better personal health.

Delivering quality education is a challenge faced by both rural and urban communities. Education can prompt curiosity that may facilitate solutions to complex environmental issues, such as waste management, resource extraction, ecosystem restoration, pollution reduction and health.

The four school districts within the Thompson Region are the Kamloops-Thompson, Nicola-Similkameen, North Okanagan-Shuswap and Gold Trail.

Education Snapshot

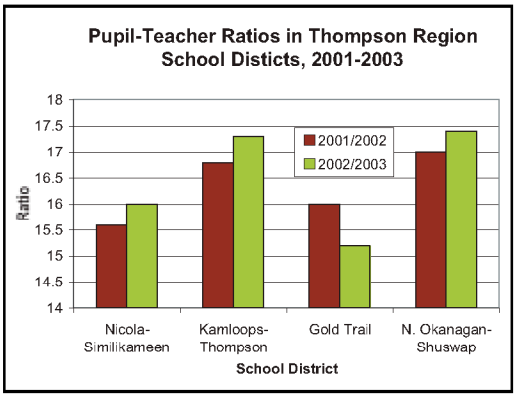
- 53% of the regional population has some level of post secondary training.
- The North Okanagan-Shuswap school district has the highest completion rate for both Aboriginal and Non-Aboriginal students in the region.
- Aboriginal students have a significantly lower graduation completion rate in all four school districts.
- Average elementary class size in three of four school districts were below the provincial average for elementary class sizes and the lowest of the five Regions in the Fraser Basin.

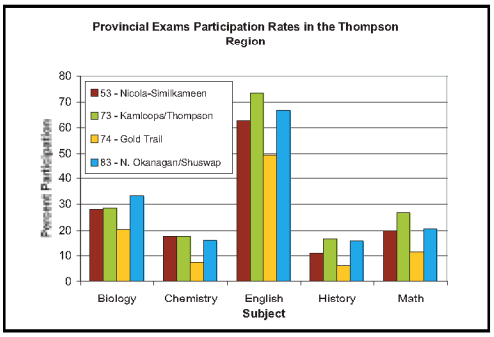
Sustainability Issues and Trends

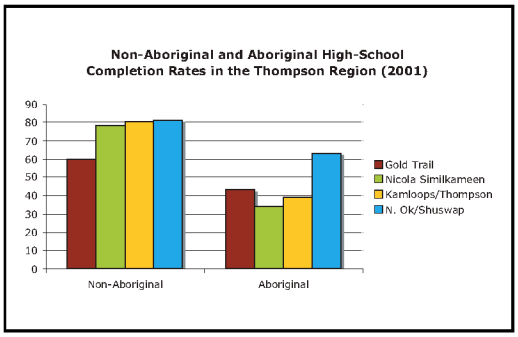
Level of Education Attainment

- Since 1991 the percentage of the population with

LEARNING *(Natalie Bandringa photo)*







greater than a Grade 9 education has continued to increase.

- The proportion of people with some level of post-secondary training remained relatively constant between 1991 and 2001 with approximately 53% of the population above the age of 15 having some level of post-secondary training.
- The number of people with university degrees within the region has increased by nearly 2.5% since 1996.
- Level of educational attainment may be biased by employment opportunities available in the census area; for example, more university graduates may live in the TNRD because of higher educational requirements by employers.

High School Completion Rate

- Of the four school districts in the Thompson Region, the North Okanagan-Shuswap has maintained the highest completion rate for both Aboriginal (63%) and Non-Aboriginal students (81%) (2001).
- Between 2000 and 2002 the Nicola-Similkameen school district has had a 4% decrease in high school completion rate.
- Aboriginal students have a significantly lower graduation completion rate in all four school districts in the Thompson Region; for example, the Thompson Region's Aboriginal high school completion rate for 2001 was less than 50% in three of four school districts.

Foundation Skills Assessment (FSA)

- The FSA is administered to Grade 4, 7 and 10 students in the province of BC annually. Reading Comprehension, Writing and Numeracy results can be used as a tool by entire school districts, individual schools, or individual students to evaluate student performance.
- Grade 4, 7 and 10 public school students in the Kamloops-Thompson and North Okanagan-Shuswap districts were on par with the provincial FSA average, while the Nicola-Similkameen and Gold Trail Districts were below the provincial FSA average in the 2003/04 school year.

Student/Educator Ratio

- Research suggests that quality of education can be improved through reduced class sizes.
- Three of the four school districts in the Thompson Region had fewer educators per student population in the 2002/03 school year as compared to 2001/02.
- Average elementary class sizes in three of the four school districts within the region were below the provincial average for elementary class sizes and the lowest of the five Regions in the Fraser Basin.

What Are We Doing?

- The Kamloops-Thompson (1999-2004) and Nicola-Similkameen (2004) school districts have entered into Aboriginal Education Improvement/Enhancement Agreements. These agreements are focused on enhancing the academic performance of Aboriginal students and honouring and supporting the histories, cultures and languages of the Aboriginal people whose traditional territories are served by each school district. The eventual goal is to narrow the gap between Aboriginal and non-Aboriginal students until parity is reached. For more information visit: www.bced.gov.bc.ca/abed/agreements/agreements.htm.

What else can we do?

- Play a larger role in educating the youth of your area by getting involved with reading, tutoring and other educational programs and activities.
- Support innovative approaches to education and enhance the quality of schools, libraries and related educational resources in your area by volunteering and supporting fundraising activities.
- Participate in and support opportunities for life-long learning in your community.

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FISH AND FISHERIES

The Sustainability Connection

Fish and fisheries are key components of the ecosystems in which we live, and they play critical social, economic and environmental roles in the Thompson Region. For thousands of years diverse, viable populations of salmon, steelhead and other fish have contributed to the well being of Aboriginals and non-Aboriginals by supporting a variety of cultural and spiritual values. More recently, they have provided a basis for commercial tourism and recreational industries. Because our activities can have adverse effects on fish, wildlife and their habitats, we need to protect ecosystem health with proper management practices.

Recreational fisheries in the interior of the province provide a valuable contribution to the economies of interior communities. For example, it is estimated that freshwater anglers spend $100 a day to partake in this form of recreation and contributed $75 million to the regional economy in 2000. Recreational fishing is an enjoyable family oriented activity as well as an opportunity to experience nature and the outdoors. Opportunities exist in the Thompson Region to enjoy a wide spectrum of fishing experiences.

Every First Nation community in the Thompson Region was once dependent on the salmon return for their survival. Every stream in the region has an annual return of salmon. During peak years the Adams River sockeye run will attract more than 100,000 visitors to the Shuswap area. Visitors of the run are able to view educational displays regarding local Aboriginal communities and their role in sustainable fisheries. This knowledge may facilitate greater public perception of Aboriginal and Non-Aboriginal roles in the Thompson Region fishery.

Thompson River steelhead are one of North America's most prized sport fishes and, until recently, the population was sufficient to lure anglers from around

the world. However, current populations are well below historic population numbers.

Fish and Fisheries Snapshot

- The Thompson Region is the centre of the freshwater trout fishery in BC, generating approximately $75 million annually in economic activity.
- The Adams River sockeye run is one of the largest sockeye runs in the world with nearly 1 million salmon returning in the average year.
- Thompson River steelhead populations have reached critically low levels, resulting in a short closure of the fishery in 2004.
- Interior Fraser River Coho are being considered for listing under the federal Species At Risk Act (SARA).

Sustainability Issues and Trends

Freshwater Recreational Fishery

- 82,766 angler licenses were sold in 2000, which accounted for 27% of all angling effort in BC. It is estimated that 756,000 angler days were expended in the Thompson Region in 2000.[1]
- The resource attracts visitors from around the world and supports small businesses and numerous resorts in the region.

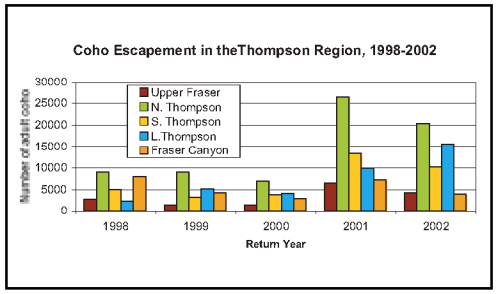
Status of Salmon Stock Escapements

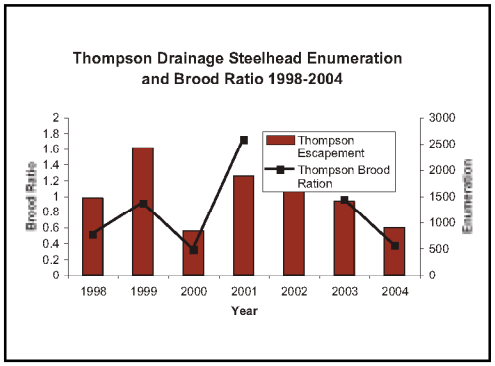
- In the late 1990s fisheries management measures were taken to protect Chinook and Coho that were experiencing some of their lowest returns on record. Returning brood stock from these protected runs has since shown positive results, and stocks appear to be rebounding.
- Interior Fraser River Coho salmon are presently being considered for legal listing under SARA. This has implications for management of the Coho fishery in the future.
- Pink salmon returns in the Thompson watershed were abundant in 2001, and even expanded to utilize several areas where the species had not been recorded in several decades.
- Maintaining a sustainable salmon population requires managing commercial, recreational and Aboriginal harvest, and protecting spawning, rearing and migration habitat.

Thompson River Steelhead

- Thompson River steelhead populations have fallen to critically low levels, which resulted in the closure of the catch and release fishery in 2004.
- Thompson steelhead spawning occurs within the Nicola, Deadman and Bonaparte River systems. Current conditions affecting steelhead production in these systems include loss of riparian habitat, water extraction and natural drought conditions, in addition to numerous other variables.
- Returns forecasted for the 2005 run are estimated at less than 1,400 fish.

FISHING *(Dave Pehl photos)*





Making Sustainability Work

What are we doing?

- In 2001 the Pacific Salmon Foundation initiated a watershed-based effort to recover salmon and steelhead in the Coldwater River. Key to the development of the plan were the Nicola Tribal Association and Nicola Watershed Roundtable.
- In December of 2004 Fisheries and Oceans Canada (DFO) released the long awaited Wild Salmon Policy, A Policy Framework for Conservation of Wild Pacific Salmon. The complete document is available at: http://www-comm.pac.dfo-mpo.gc.ca/publications/wspframework/default_e.htm.
- The federal SARA came into full force in June 2004 to support the protection and conservation of listed wildlife species and their associated habitat. For more information visit: www.speciesatrisk.gc.ca.

What else can we do?

- Local governments and businesses can learn and incorporate Best Management Practices (BMPs) to protect and conserve fish species and their habitats.
- Landowners can consult Stewardship Options for Private Landowners in BC to protect and maintain fish habitat. www.stewardshipcanada.ca.
- Licensed irrigators can develop efficient practices that eliminate excess use of water. Help can be found at the Ministry of Agriculture, Food and Fisheries (MAFF). http://www.agf.gov.bc.ca/resmgmt/publist/Water.htm
- Individuals interested in getting involved with local conservation and stewardship programs can contact Pacific Streamkeepers Federation (www.pskf.ca), the BC Wildlife Federation (www.bcwf.com) or their local DFO Community Advisor. The CA for much of the Thompson Region is Dennis Demontier, available by phone (250 851-4954) or email (DemontierD@pac.dfo-mpo.gc.ca).

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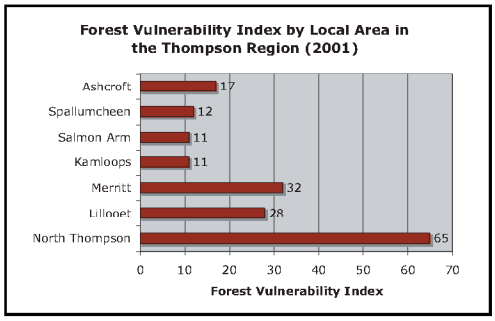
FOOTNOTES

1 – Levey, J. and Williams, R. Ministry of Water, Land and Air Protection, Fish and Wildlife Recreation and Allocation Branch. 2000 Survey of Sport Fishing in British Columbia: Region 3, 2003.

SOUTH THOMPSON RIVER, 2003 – View toward Sun Peaks and the McGillivary Lake Fire *(Chuck Bishop photo)*



FORESTS AND FORESTRY

The Sustainability Connection

Sustainable forests and forestry provide economic, environmental and social benefits to the Thompson Region, including direct and indirect employment, clean air and water, fish and wildlife habitat, recreational opportunities and cultural values. Forest practices that promote sustainable forest management, such as third-party certification and alternative harvest practices, have seen continual improvement over the last few decades in the region.

The Thompson Region has some of the most diverse wildlife and plant communities in the Fraser Basin. As a result, the region is a popular tourist destination for visitors from around the world. Accessible wilderness and forested lands are a primary attraction for these visitors as they provide recreation opportunities. Cross-country skiing, ATV areas, wilderness fishing and backcountry hiking are only a few examples of the recreation activities that can be enjoyed year-round within our forests. In addition to recreation, forested lands are highly valued by Aboriginal and non-Aboriginal people for their cultural and spiritual values.

Forests and Forestry Snapshot

- About 75% of the region in covered by forested lands.
- All major forest companies in the region have achieved third-party Sustainable Forest Management certification.
- Land Use Planning has been completed in four of five Timber Supply Areas.

What are the current conditions?

Forest Cover

- Forest cover refers to the mix of tree species and age classes that are found within forests, and is used as an indicator of the level of biodiversity within the region.
- Forested lands cover approximately 75% of the Thompson Region.
- Lodgepole pine and Douglas-fir are the leading species in the region in terms of percent cover.
- 50% of the Fraser Basin's Douglas-fir, 51% of the western red cedar, 89% of the ponderosa pine and greater than 95% of the larch and western white pine are found in the Thompson Region.
- Managing forest cover to increase species biodiversity will help to defend against species-specific pests, such as the mountain pine beetle and western spruce budworm.

Sustainable Forest Management (SFM) Certification

- SFM Certification is one means of promoting and implementing sustainable forest management in BC. To learn more visit www.for.gov.bc.ca/het/certification.
- SFM Certification is a process of assessing forestry operations according to a set of management objectives, criteria and indicators. These include protecting species at risk, biodiversity, local and Aboriginal employment and non-timber forest values.
- All major forest companies in the Thompson Region have achieved third-party SFM certification as of 2003.

Not Satisfactorily Restocked (NSR) Productive Forest Lands

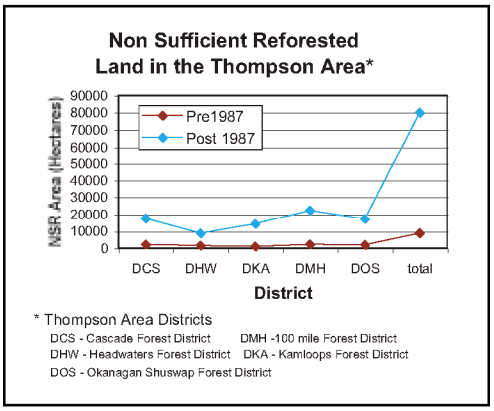
- Adequately restocked land is a key component of sustainable forestry in BC. By law all Crown land logged in BC must be reforested with indigenous tree species.
- NSR productive forest lands (current and backlog) are areas that were disturbed through harvest, wildfire, forest pests or other causes and not satisfactorily restocked following the disturbance.
- Before 1987 the government was responsible for replanting harvested forest land. Prior to 1987 the region was 'caught up' in terms of reforestation. After 1987 the responsibility shifted to the licensee, and they continue to have that responsibility.
- In 2001 the Kamloops Forest District had approximately 168,000 hectares of not stocked productive forestland. Harvested areas are reported immediately but replanting requires ground preparation and differing procedures and these usually average a two-year delay in completion. As a result, NSR data for post-1987 can appear inflated.

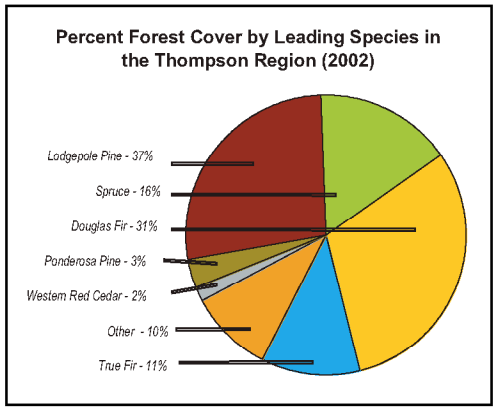
What are we doing?

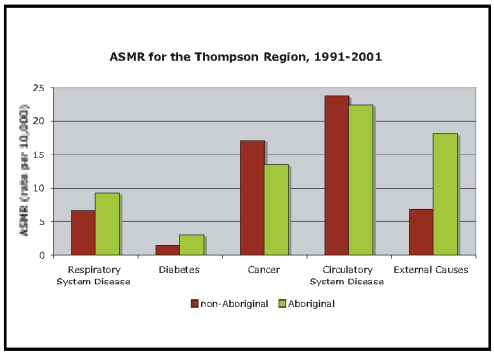
- Land Use Planning has been completed in four of the five Timber Supply Areas (TSAs) in the Thompson Region and Merritt is expected to undertake a planning process shortly (Crown land only).
- Since 2004, 708,299 cubic meters of timber were reallocated from major licensees to First Nations and community groups in the region.
- The Kamloops TSA Sustainable Forest Management Plan was developed in 2000 to foster management practices based on science and local public and Aboriginal input from the Kamloops Land and Resource Management Plan (LRMP). The plan's objective is to contribute to the long-term health and productivity of the forest resource, a strong economy and thriving communities throughout the Thompson Region.

What can be done?

- Get involved with community groups to ensure forests continue to be managed for all values.
- Industry certification requires outside advisors to serve on monitoring panels to ensure goals are met. Volunteer to serve on them.
- The Adopt a Forester Program is administered by the Association of BC Forest Professionals and allows secondary schools to adopt a forest professional and learn about what foresters do. www.rpf-bc.org/
- Buy BC forest products.
- Learn more about BC's forests in the recent State of







British Columbia's Forest Report at http://www.for.gov.bc.ca/hfp/sof.

- Participate in local and regional land and resource management planning processes.

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HEALTH

The Sustainability Connection

Personal well being and quality of life depend on individual health. The environment affects public health, particularly through the quality of air and water, the management of liquid waste and pesticides and opportunities for recreation. As a function of the social and economic environment, education, income and lifestyle choices, the health of individuals and populations is a barometer of sustainability. Health has economic implications ranging from lost employee productivity to increased demand on the health care system and related health care costs.

Health Snapshot

- Average Life Expectancy:
  For non-Aboriginals – 78.9 years (F 81.3, M 76.7);
  For Aboriginals – 73.3 years (F 76.2, M 70.5).
- The leading cause of death in the region for both Aboriginals and non-Aboriginals is heart disease.
- The total Age Standardized Mortality Rate (ASMR) for the Aboriginal population is 85.8 per 10,000 standard population, about one third higher than the rate of 65.3 for the non-Aboriginal population.
- 17.6% of Aboriginal births are to teenage mothers (<20 years of age), but only 6.5% of Aboriginals have children after age 35. Conversely, non-Aboriginal women are having their children later in life.

What are the trends and current conditions?

Life Expectancy

- Life expectancy is considered the single best indicator of human health as it integrates all of the factors that can shorten our lives, such as infant mortality, accidents, disease and suicide.
- Life Expectancy uses mortality as an indicator, and not morbidity. Morbidity refers to the presence of illness or disease, whereas mortality refers to actual loss of life (a potential endpoint of morbidity).
- Non-aboriginal life expectancy is 78.9 years in the Thompson Region. Aboriginal life expectancy in the region is 73.3 years, which appears low but is above the BC average of 72.7 years.

Leading Causes of Death

- The leading cause of death since 1991 for both the Aboriginal and non-Aboriginal population has been heart disease.
- When considering the entire regional population, circulatory system diseases account for 34% of all deaths, cancer for 27%, and respiratory-related deaths for 10%.
- ASMR is a mortality measure used by Statistics Canada, and is calculated as the rate per 10,000 standardized population. The total ASMR for the Aboriginal population is 85.8, one-third higher than the rate of 65.3 for non-Aboriginal residents.
- External causes, such as motor vehicle accidents, suicide and accidental poisoning account for a higher ASMR in the Aboriginal population. Cancer is increasing in the non-Aboriginal population, while diabetes is increasing in the Aboriginal population.

Diabetes in the Aboriginal Population

- In the last 50 years diabetes has become increasingly prevalent in the Aboriginal population, likely due to a shift in diet.
- In the Thompson Region, the Aboriginal ASMR for diabetes is 2.9, more than double the non-Aboriginal ASMR of 1.4.
- As a result we need further studies that investigate the socio-economic impacts of diabetes on both the Aboriginal and non-Aboriginal populations in the region.

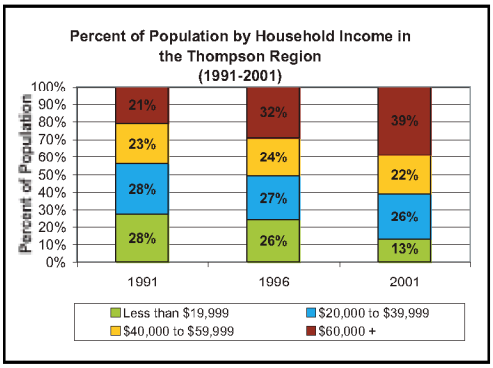
Rate of Low Weight Births

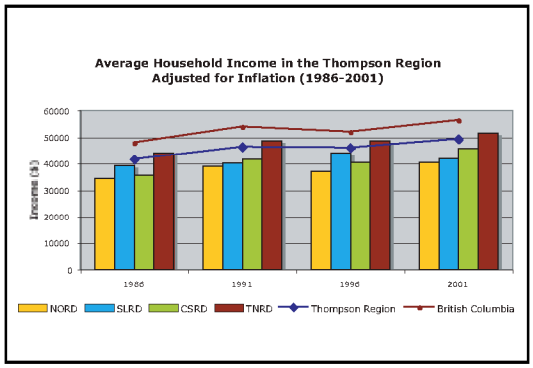
- Babies born with low birth weights are at a greater risk of not surviving their first year of life, suffering birth defects, mental retardation, developmental delays, chronic respiratory ailments and learning difficulties.
- Low birth weights are measured as the rate of babies born weighing less than 2500 grams per 1000 births.
- Between 1991-2001 the low weight birth rate was 60.6 for Aboriginals, which exceeds the BC Aboriginal average of 55. The rate for non-Aboriginals was 51.6, as compared to the BC average of 49.8.
- Aboriginal women are having their children earlier in life and non-Aboriginal women are having their children later in life. 17.6% of Aboriginal births are to teenage mothers (< 20 years of age), which is below the provincial average for Aboriginals (18.6%) but above the non-Aboriginal regional rate of 6.8%. Conversely, only 6.5% of Aboriginals have children after age 35, but 11% of non-Aboriginals do.

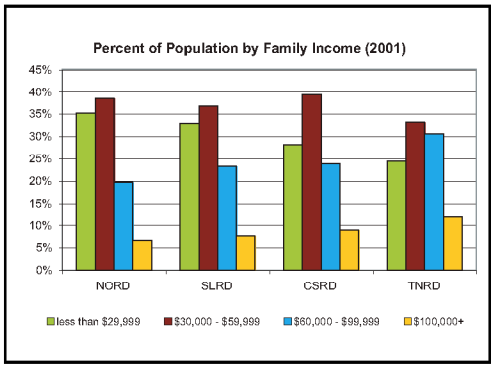
Making Sustainability Happen

What are we doing?

- The BC Ministry of Health and the First Nations Chiefs' Health Committee formed a partnership to create a user-friendly Aboriginal health guide.
- An Aboriginal Diabetes Strategy has been developed to better respond to the increasing prevalence of Aboriginal diabetes.
- Action schools! BC is a physical activity program to







help elementary school students create individual action plans for healthy living. www.actionschoolsbc.ca
- Interior Health Authority is supporting mobile MRI scanning and mammography screening.

What else can we do?

- Help to create healthy and supportive environments in our homes, schools and workplaces.
- Reduce the incidence of low weight births by providing proper prenatal care and a balanced diet.
- Exercise and follow a healthy diet.
- Establish and support early learning programs to ensure healthy child development.
- Protect clean air and water to help maintain good health.

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INCOME AND EMPLOYMENT

The Sustainability Connection

A significant portion of the Thompson Region's economy is resource-based, so long-term changes in income and employment levels can be linked to the long-term sustainability of natural resources and global markets. Communities in the region are dependent on resource-based employment to varying degrees. Areas with a high dependency continue to face employment challenges linked to economic trends in various resource sectors, particularly downturns in forestry and mining.

Having adequate income to meet household requirements is critical to the well-being of individuals, families and communities. High employment rates typically reflect a strong economy, and income and employment trends can be strongly linked to other social indicators, such as health and education.

Changes in income and employment levels can be linked to the availability and health of natural resources, including steps taken to ensure their local sustainability. These changes can also affect consideration of environmental values by residents.

A vibrant and competitive economy enables companies to develop and implement more environmentally friendly policies and practices. Successful companies are more likely to ensure that their product/service is provided in an environmentally friendly manner.

Income and Employment Snapshot

- Average household income in the Thompson Region has grown steadily since 1986, from $41,500 to $49,300 after inflation adjustment.
- The lowest increase of average family income in the region between 1986 and 2001 occurred in the SLRD.

What are the trends and current conditions?

Income

- Average household income in the Thompson Region has grown steadily since 1986 with the average increasing approximately 19% ($8,000) between 1986 and 2001 once adjusted for inflation.
- The lowest increase of average family income in the Thompson Region between 1986 and 2001 was in the SLRD (7%), while the highest increase was in the CSRD (29%).
- The proportion of low-income families[1] in the region decreased from approximately 14.1% in 1996 to 11.7% in 2001.

Employment

- Employment rates are a good measure of the rate of labour utilization, and high rates of employment usually reflect strong economic activity.
- Between 1991 and 2001 there was a slight decrease in participation in the regional labour market, although the average participation rate for the region is on par with that of the province. The TNRD and the NORD portion of the region have experienced decreased participation rates, while the SLRD and CSRD portions have seen increased rates or been stable over the same 10-year period.
- The largest sectors by employment in the region are retail trade (12.4%), healthcare and social assistance (9.8%) and manufacturing - wood/forest products (9.7%).

Unemployment

- The unemployment rate in the Thompson Region for 2003 4th quarter report was 9%, as compared to the BC average of 8.4%.
- Youth unemployment is more than double the rate of adult unemployment. The Thompson Region has the second highest youth unemployment rate (19%) of the five Fraser Basin regions (2001).

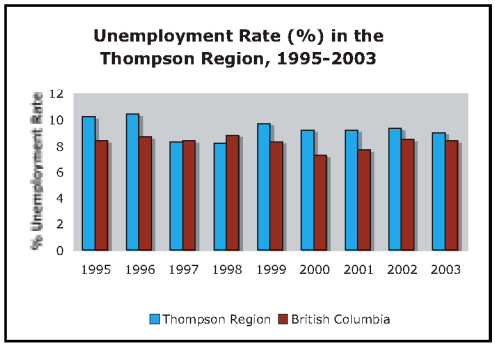
Making Sustainability Happen

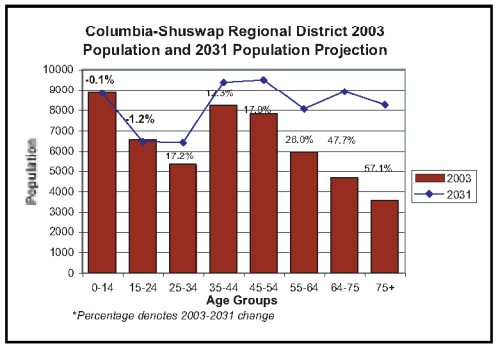
What are we doing?

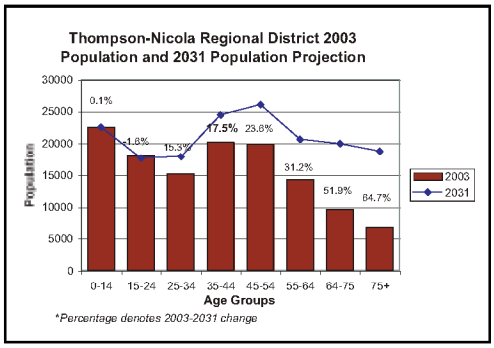
- All levels of government are investing in infrastructure that supports a vibrant economy.
- Many communities are exploring economic diversification opportunities (Lillooet 2005).
- The FBC is partnering with First Nations on economic development opportunities.

What else can we do?

- Support higher education for students to facilitate greater future income and employment opportunities.
- Support programs with mentorship and work experience to enable younger people to learn from more experienced workers.
- Work with governments and community organ-







izations to alleviate poverty and assist low-income families.

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FOOTNOTES

1 – As defined by Statistics Canada, the incidence of low income is the proportion of economic families below the low income cut-off. The low income cut-off is determined by analysing family expenditure data and determining at which income threshold families will devote a larger share of income to the necessities of food, shelter and clothing than the average family.

POPULATION

The Sustainability Connection

An understanding of population trends can facilitate the development of strategies that manage available resources and balance economic, environmental and social priorities. Population growth, age demographics and ethnic composition are some of the indicators that must be considered when making sustainable decisions. Changes in service costs, property values or infrastructure development can all be linked to population dynamics.

While high growth rates may result in employment opportunities or other economic benefits, many rural communities in the interior are also faced with the adverse affects of economic transition, such as out-migration of the population. Population decreases occurring in these rural communities could result in the loss of social programs or services and decreased infrastructure improvements.

A growing population usually increases the pressure on natural resources and the environment as new residents and businesses build new structures, increase energy and water use, require more transportation infrastructure and increase pollution from automobiles.

As the "baby boom" generation ages, significant change will occur in the proportion of the Thompson Region population, specifically in age classes 35 years and older. Shifts to older age demographics in a community could result in increased housing demand or over-utilized community services and elderly dependencies.

Understanding growth trends can provide better opportunities to plan sustainable growth.

Population Snapshot

- Kamloops, Salmon Arm and Merritt account for approximately 60% of the region's population.
- Ethnic diversity in the region has remained relatively stable since 1986.
- 15,460 people, or approximately 9% of the region population, are Aboriginal (2001).
- Of the four Regional Districts within the region, only the CSRD is not currently working on a Regional Growth Strategy.

What are the trends and current conditions?

Population Growth

- The Thompson Region makes up about 6.5% of the Fraser Basin's population and is currently estimated at approximately 168,000 people. The three largest municipalities, Kamloops, Salmon Arm and Merritt, account for approximately 60% of the population of the region and, along with CSRD Electoral Area 'C', have accounted for much of the growth over the past 20 years.
- Of the four Regional Districts in the Thompson Region, the CSRD portion has had the highest growth rate since 1986 (2.73%).
- The SLRD and NORD portions of the Thompson Region are primarily comprised of small rural communities. Although all four Regional Districts in the Region have shown reduced growth rates since 1996, the SLRD and NORD portions actually experienced decreases in populations between the 1996 and 2001 census years.

Age Demographics

- The age structure of the Thompson Region has shown an increase in age classes 35 years and older. By 2031 it is predicted that 35% of the TNRD population and 38% of the CSRD population will be above the age of 55.
- Child and elderly dependency rates can affect social and economic structures of an area. In 2002 the total dependency rate of the Thompson Region (child and elderly) was estimated at 56%. Over the next 10 years the dependency rate is predicted to drop by approximately 1%. This decrease will result from a change in population demographics that will likely include a decrease in the child dependency rate coupled with an increase in the elderly dependency rate.
- As the baby boom generation retires from the labour force the region may experience labour shortages and a significant rise in demand for health and social services.

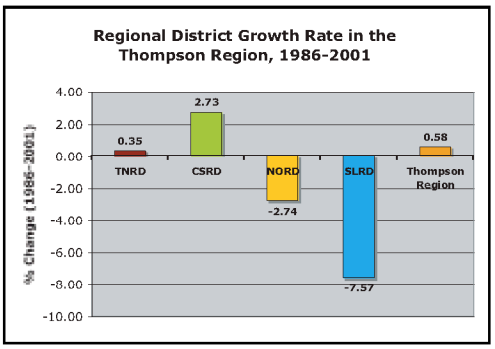
Ethnic Diversity

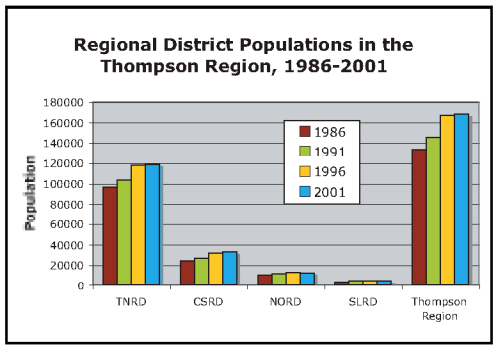
- Ethnic diversity of the Thompson Region has remained relatively stable from 1986-2001. The largest three ethnic groups are British [English, Scottish, Irish] (25%), German (10%) and Aboriginal (9%).
- 15,460 people, or approximately 9% of the Thompson Region population, are Aboriginal (2001).
- The Aboriginal population growth rate appears to be considerably higher than the non-Aboriginal population. However, census data may have been limited by previous First Nation response rate and confidentiality related to smaller population census divisions.
- The proportion of younger age classes is higher in Aboriginal populations compared to non-Aboriginal populations.

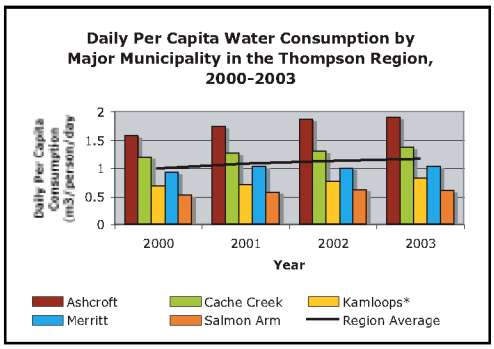
Growth Management

- Local governments are using a variety of regulatory tools to encourage sustainable development. Policies and tools to manage growth include Official Community Plans (OCP), Regional Growth Strategies (RGS) and zoning bylaws.
- Of the four Regional Districts within the region, only the CSRD is not currently working on a Regional Growth Strategy (RGS). Ironically, the CSRD is experiencing the highest growth rate of all four Regional Districts.
- The CSRD recently rejected the opportunity to work with the District of Salmon Arm on a joint growth management strategy for the Shuswap Area.

NEXT: Making Sustainability Work







Making Sustainability Work

What are we doing?

- Official community plans have been developed for most of the settled areas in the TNRD.
- Three of four regional districts in the region have developed Regional Growth Strategies.
- The TNRD has Lakeshore Development Guidelines.

What else can we do?

- Community goals and related services can be adapted to meet the sustainability needs of a changing population. Particular consideration should be given to an aging population and the unique ethnic composition of each community.
- Support the designation of agricultural land in the Agricultural Land Reserve (ALR).
- Local Governments can incorporate the principles of sustainability and Smart Growth into their land use planning decisions.
- Protect waterways and unique features of communities by designing subdivisions that respect their unique qualities.
- Ensure planning and construction includes access features to allow all citizens the opportunity to partake.

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WATER QUALITY AND QUANTITY

The Sustainability Connection

Maintaining water supplies for residential, agricultural, industrial and tourism purposes is essential to the well-being of the region. Water quality and quantity are also important to the maintenance of healthy ecosystems. Ecosystems that support abundant fish and wildlife are often an indication of the presence of good water quality that is required to support human needs. The Thompson Region experiences significant water shortages during most years. Within the interior dry belt, which covers much of the Thompson Region, the allocation and use of water often results in a debate between environmental and economic interests.

Residential users are affected in the form of increased costs for purification and sewage treatment. An insufficient supply of clean water for drinking or recreation can also affect property values.

Water Quality and Quantity Snapshot

- Approximately 77% of the Thompson Region is serviced by a municipal or community sewage system.
- The average domestic per capita water use in the region was approximately 1,013 L/person/day in 2003.
- Per capita water consumption in the region has shown a 15% increase since 2000.
- Less than 20% of households in the Thompson Region pay for water by volume (i.e. metering).

What are the trends and current conditions?

Sewage Treatment

- Sewage treatment can affect the quality of water returned to waterways in the Thompson watershed. Approximately 77% of the Thompson Region is serviced by a municipal or community sewage system. The remaining 23% have septic tanks or no treatment system at all.
- Sewage treatment can be identified by three basic categories: primary, secondary and tertiary treatment. Tertiary treatment is the most advanced.
- The three largest communities in the Thompson Region, Kamloops, Merritt and Salmon Arm, are serviced by tertiary treatment facilities. Other organized areas are served by secondary treatment facilities and Lytton has recently upgraded to this level.
- Most residents in the Thompson Region who are not serviced by municipal or community sewage systems generally rely on septic fields for sewage disposal. Many of these are poorly maintained or improperly installed and pose a risk to water quality.
- Approximately 45% of residents in the CSRD are not connected to a municipal or community sewage treatment facility.
- During the summer seasonal residences can significantly increase the population base along Shuswap Lake, and most of these residents are serviced by septic systems. This increased use of septic tanks is impacting the near-shore waters of the lake with increasing coliform counts and loss of water clarity.

Municipal Water Use

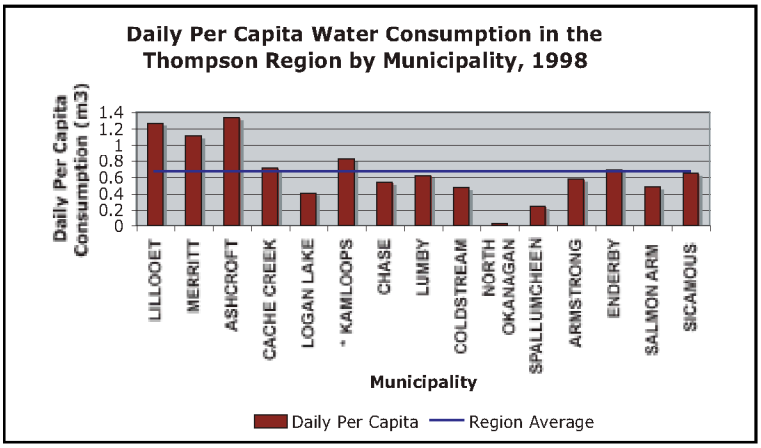
- Canadians are among the highest water users in the world, and the Thompson Region is no exception.
- The average domestic per capita use within major municipalities in the Thompson Region was approximately 1,013 L/person/day in 2003, as compared to the Canadian average of 343 L/person/day,[1] which is already nearly double the per capita consumption of most European countries.
- Per capita water consumption in the region has shown a 15% increase from 2000 to 2003 (was 677 L/person /day in 1998).
- Reduced water consumption can lead to savings in sewage treatment and maintenance at water treatment facilities. Water conservation also saves energy. In Kamloops and other communities one of the biggest costs of the water distribution system is the energy needed to pump the water all the way up the hill!

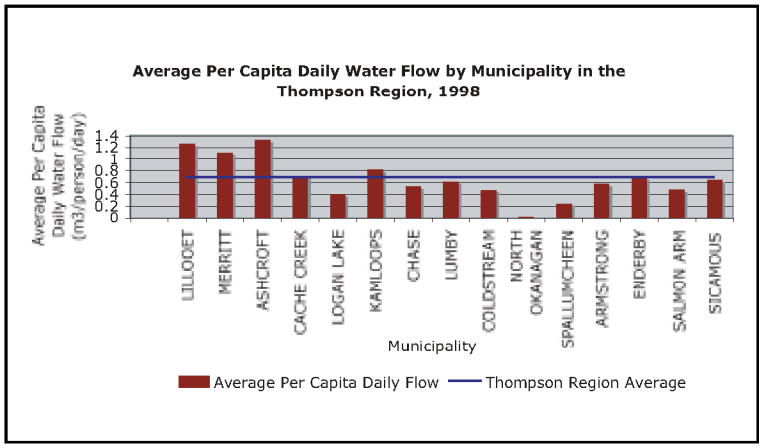
Water Metering

- As populations continue to grow, so will the demand for water. Practicing water conservation is essential to sustaining the water resource.
- Metering water is one way of financially rewarding consumers who practice water conservation.
- Research has suggested that households that pay a flat rate for water will consume, on average, as much as 50% more than metered households.[2]
- Less than 20% of households in the Thompson Region pay for water by volume (i.e. metering).

Groundwater

- Major groundwater issues in the Fraser Basin and the Thompson Region include the maintenance of aquifer levels, the protection of recharge areas from contamination and the protection of groundwater well heads.





- In the Thompson Region, four aquifers have reported groundwater quality concerns and three are listed as vulnerable to contamination as of 2002.[3]

Making Sustainability Happen

What are we doing?

- Recently, the Ministry of Water, Land and Air Protection (WLAP) released a preliminary groundwater management policy for the province of BC, and is in the process of developing an aquifer classification system to convey level of use, risk of contamination and aquifer vulnerability.
- The provincial Groundwater Protection Act establishes standards for the construction of wells, regular testing and reporting and water management plans. http://wlapwww.gov.bc.ca/wat/gws/
- Many communities are adopting programs to encourage the use of water conservation devices and practices for the home, garden and commercial-industrial uses.
- Multiple watershed roundtable organizations exist in the Thompson Region, and are typically comprised of active community members and representatives from government. Roundtable organizations strive to improve the quality and quantity of their respective watersheds.

What else can we do?

- Insist on having water meters in your city. Meters will have initial costs but will reduce your taxes in the long term by reducing water treatment and sewage treatment costs.
- Practice water conservation by installing low flow fixtures in showerheads and toilets in your home. For more information visit the Water Efficiency Clearinghouse web site at www.awwa.org/waterwiser/.
- Protect watershed areas to ensure that the residents of the Thompson Region enjoy safe and clean drinking water.
- Get involved with your local watershed roundtable organization to promote watershed stewardship.
- As a farmer or rancher, practice watershed stewardship by limiting cattle access to streams, managing grazing rotations and timing to reduce the impacts on riparian areas, and monitoring the application, timing and amount of manure applied to fields.
- If you are interested in improving the efficiency of your irrigation system, visit the Ministry of Agriculture, food and Fisheries (MAFF) to view this ministry's Water Conservation Factsheet: Irrigation Tips to Conserve Water on the Farm at www.agf.gov.bc.ca/resmgmt/publist/500series/500310-1.pdf, or phone your Kamloops MAFF office toll free at 1-888-823-3355.

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Fresh H2O Outlook. Issue 17, 2003.

FOOTNOTES

1 – Fresh H2O Outlook. Issue 17, 2003.
2 – State of the Environment Bulletin No. 2001-1, Environment Canada.
3 – WLAP. State of the Environment Reporting, 2002.

WILDLIFE

The Sustainability Connection

For thousands of years diverse, viable wildlife populations have contributed to social and economic well-being by supporting a variety of cultural and spiritual values and, more recently, providing a basis for commercial, tourism and recreational industries. Much of Canadian culture is based on the enjoyment associated with land and wildlife. Enjoying the outdoors can be a healthy alternative to the creation of pollution and high levels of stress associated with larger urban areas.

Sustainable wildlife populations are key components of the ecosystems. Managing for wildlife populations requires managing for wildlife habitat, including the types of vegetation and other ecosystem components on which they depend. Some of this has been addressed in the Protected Areas (PA) Strategy for BC whereby a fraction of each biogeoclimatic (BEC) zone in the region is protected. PAs provide habitat for wildlife and additional opportunities for people to enjoy the outdoors.

Tourism based on the land and wildlife in BC contributes millions of dollars of revenue to the provincial economy each year. Managing wildlife populations to provide viewing and hunting opportunities to visitors and residents is essential to the economic sustainability of the Thompson Region.

Hunting can provide an additional source of food for families, or simply a social excursion into the wilderness. In addition to recreational hunting, harvests are often necessary to control problem wildlife and reduce wildlife-human conflict, such as problem bears and cougars in urban areas and agricultural crop damage by wildlife in rural areas.

Wildlife Snapshot

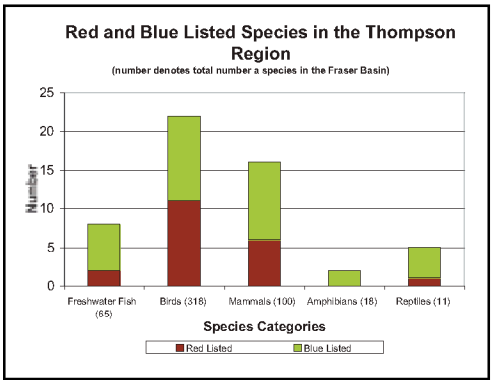
- Hunter success rates for the most commonly hunted big game species in the region have been stable over the past 20 years.
- The Bunchgrass (BG), Ponderosa Pine (PP) and Interior Douglas-fir (IDF) zones are underrepresented in the region's protected areas.
- Recovery Action Plans are currently being created for species listed under the federal Species At Risk Act (SARA).

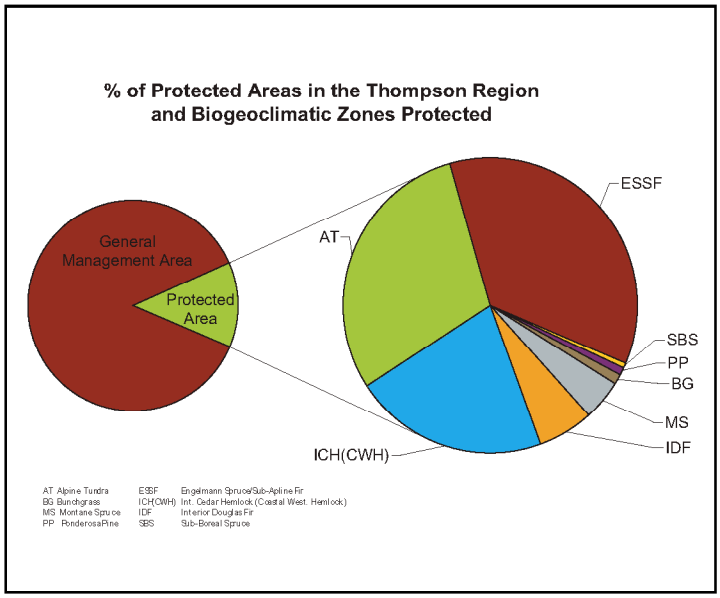
What are the current conditions and trends?

Harvest Management

- Hunter success rate is an indicator of wildlife

ROUGH-LEGGED HAWK *(Chuck Bishop photo)*





population management, and long-term consistent harvest rates can be an indication of sustainable population management.

- Although yearly fluctuations can occur in hunter success rates, over the past 20 years rates for the most commonly hunted big-game species in the Thompson Region have been relatively stable.
- Species-specific regulation changes have been used as an effective management tool to increase or decrease harvest rates and maintain sustainable populations in the region.

Protected Areas and Resource Management Planning

- Within the Thompson Region four strategic Crown land use plans are in place or currently under development. The Kamloops, Okanagan-Shuswap and Lillooet Land and Resource Management Plans (LRMPs) have been completed. The Merritt Sustainable Resource Management Plan (SRMP) is currently being considered.
- 15% of the land base in the region is sheltered under protected area status. It contains 5% of the available BG, 3% of the IDF, 4% of the PP, 6% of Montane Spruce (MS), 1% of Sub-Boreal Spruce (SBS), 15% of Interior Cedar Hemlock (ICH), 20% of Engelmann Spruce -Sub alpine Fir (ESSF) and 32% of the Alpine Tundra (AT) Biogeoclimatic Ecosystem Classification (BEC) Zones.
- Native grassland habitat is considered one of BC's most threatened habitats and more than 50% of red and blue listed species in the region reside in grassland habitats.

Species at Risk

- Species are listed based on the vulnerability of the populations in the area (size of population, extent of distribution, etc.). However, the criteria for listing does not account for historic population levels, species distribution or the lack of accurate inventories for some species in the Thompson Region. For this reason, having a species listed does not necessarily indicate a downward trend in the population.
- 20 species in the Thompson Region are legally designated under the BC Wildlife Act as "red-listed," which means that they are extirpated, threatened, endangered or likely to become endangered.
- 33 species in the Thompson Region are legally designated under the BC Wildlife Act as "blue-listed," which means that they are vulnerable.

Making Sustainability Happen

What are we doing?

- The SARA was enacted by the federal government to support the protection and conservation of species at risk in Canada. However, the province still has jurisdiction over the management of wildlife populations in BC, and only certain species are afforded protection under the Act.
- For species listed under SARA, Recovery Action Plans will be created by teams of individuals representing the best available scientific, traditional and community knowledge of the particular species.
- The BC Ministry of Water, Land and Air Protection (WLAP) determines hunting limits and regulations each year for select harvestable species, which allows for sustainable management of healthy wildlife populations. Regulations are flexible and altered based on the status of the particular wildlife population.
- The Ministry of Forests is updating their BEC classifications and inventorying all forest values.

What else can we do?

- Local governments and businesses can follow Best Management Practices (BMPs) with respect to development that will allow for the protection of fish and wildlife species and their habitats.
- Governments can increase the funding for inventories of wildlife species to determine their status.
- Landowners can consult the Stewardship Options for Private Landowners in BC to protect and maintain wildlife habitat (www.stewardshipcanada.ca).
- Familiarize yourself with SARA and what it means for a species to be listed as endangered, threatened or at risk in Canada (www.speciesatrisk.gc.ca).
- Familiarize yourself with what it means for a species to be listed as red, yellow or blue in the province of BC. http://srmwww.gov.bc.ca/atrisk/red-blue.htm

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BC Species and Ecosystems Explorer, 2004. http://srmapps.gov.bc.ca/apps/eswp/

Ministry of Forests, Kamloops Region, 2004.

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GLOSSARY *(continues next page)*

ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
ASMR	Age Standardized Mortality Rate
BEC	Biogeoclimatic Ecosystem Classification. There are 13 zones in total to describe the climate, soils and vegetation of BC's diverse ecosystems. Zones in the interior include: Alpine Tundra (AT), Bunchgrass (BG), Ponderosa Pine (PP), Interior Douglas Fir (IDF), Montane Spruce (MS), Engelmann-Spruce Sub-alpine Fir (ESSF), Sub-boreal Spruce (SBS), Sub-boreal Pine Spruce (SBPS), and Interior Cedar Hemlock (ICH).
Blue-listed Species	Species designated under the BC Wildlife Act as vulnerable in the province of BC.
CAWS	BC Ministry of Community, Aboriginal and Women's Services

COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSRD	Columbia Shuswap Regional District
CWS	Canada Wide Standards
DFO	Fisheries and Oceans Canada
EC	Environment Canada
EDI	Economic Diversity Index
FVI	Forest Vulnerability Index
INAC	Indian and Northern Affairs Canada
LRMP	Land and Resource Management Plan
MAFF	BC Ministry of Agriculture, Food and Fisheries
MSRM	BC Ministry of Sustainable Resource Management
NORD	North Okanagan Regional District
NPRI	National Pollution Release Inventory
NSR	Not Satisfactorily Restocked
PM	Particulate Matter
Red-listed Species	Species designated under the BC Wildlife Act as either extirpated, threatened, endangered or likely to become endangered in the province of BC.
SARA	Federal Species at Risk Act, enacted June 2004 to protect species at risk in Canada.
Sewage Treatment	• **Primary (sedimentation and flotation).** Raw sewage passes through screens that remove the large debris and then it enters primary clarifiers where materials that settle or float are separated. Anaerobic bacteria then begin to consume the organic solids. • **Secondary (biological).** After primary treatment, the remaining wastewater is exposed to aerobic bacteria. Combined with sufficient aeration these bacteria consume soluble and non-settled organic matter remaining in the wastewater. • **Tertiary.** Further treatment of wastewater can be done using physical, chemical or biological processes. Generally, tertiary treatment involves adding chemical compounds that cause the remaining suspended or dissolved substances to coagulate (clump) and settle out in the tertiary treatment cells.
SLRD	Squamish Lillooet Regional District
SRMP	Sustainable Resource Management Plan
TNRD	Thompson-Nicola Regional District
WLAP	BC Ministry of Water, Land and Air Protection

Marie Mervin photo

Thompson Region MAKING SUSTAINABILITY WORK

All members and levels of society should undertake the journey towards sustainability. To date, a great deal of progress has been made towards resolving many sustainability issues. This progress has been a joint effort by individuals, governments, community organizations and businesses. However, many other issues have continuing challenges that must be acted upon in order to achieve a higher level of sustainability within the Thompson Region, the Fraser Basin and beyond.

The Fraser Basin Council believes that the concepts and principles of sustainability will always work to advance "social well-being supported by a vibrant economy and sustained by a healthy environment." Sustainability requires dedication, commitment, patience and persistence. It also requires "thinking outside of the box" if we are going to successfully resolve long-standing challenges that threaten our long-term existence. The Council is committed to continue to work in collaboration with many others to advance sustainability. It is also committed to further develop and refine its indicators program as a means to measure and report on the region's progress towards sustainability.

Indicators and sustainability reports are only one tool to help us measure and convey information. Perhaps more critical is that this information inspires us to act, as individuals, families, consumers, employees, investors, government policy-makers and business managers. We hope the insights of this report – and others like it – inform your day-to-day behaviours, choices and decisions. We share with you also a goal for long-term sustainability, not only for the Fraser River Basin, but also for the multitude of peoples and species who live on the planet Earth, both now and in the future.

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We Want Your Feedback

The Thompson Regional Committee values the insights and perspectives of all its constituents, including individuals, all orders of government, the business community and civil society. We would like your feedback. Please let us know:

- Is the report useful in helping you better understand sustainability?
- Is the report useful in guiding your actions and decisions to advance sustainability?
- What suggestions do you have to improve our next Report on Sustainability?

Acknowledgements

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