

Ecology Action Centre director Howard Epstein

PHOTO: ROBERT CURRIE

## EAC offers solutions

BY ROBERT CURRIE

ENVIRONMENTAL problems have never received as much attention as they have in recent years. Yet while the headlines scream the latest disasters, solutions rarely get as much notice.

The Ecology Action Centre is interested in solutions. Since 1971, the EAC has been educating the public and lobbying government and industry on a host of environmental matters.

"We take a very broad mandate," says EAC director Howard Epstein. "We are concerned with any environmental problems in Nova Scotia."

The EAC, with about 1500 members, is Nova Scotia's largest environmental group. Operating from their offices on Veith St. in north-end Halifax, the EAC has become a cornerstone of environmental awareness in Nova Scotia. "Every day I get letters and calls

from people asking for information," says Epstein.

As for the EAC's impact, Epstein says, "We're in the business of influencing government action and changing public opinion, so it's often very difficult to point to what your solid accomplishments are."

Aerial spraying of herbicides, uranium mining and solid waste disposal are just three of the issues on which the centre has made its voice heard, often with success.

"When we started out talking about recycling and composting and reducing it was virtually unheard of in this province, and now it's very common."

"People now take seriously the idea of sustainable development here," says Epstein. "It clearly hasn't made its way into the premier's office yet, but it seems clear though that the trend is our way."

Epstein says to look for the EAC to be active in the upcoming municipal incinerator battle. "We'll be looking to try and get the province in-

cluded and put a moratorium in place on incinerators."

Despite the current preoccupation with the economy, Epstein believes the momentum of the environmental movement has not faltered.

"I think people are beginning to see that the simple notion of environment versus jobs is not the correct analysis," he notes.

"Economic and environmental issues are bound up together. We have a responsibility to make responsible suggestions for alternative ways of doing things, including alternative ways of providing people with employment."

The centre currently has about three dozen volunteers, including many students, and is always on the lookout for new.

"People can do anything here," says Epstein. "People can come with well-developed skills or with no skills at all and we're happy to take them on."

## CFCs: Multi-nationals move South as ozone disappears

BY LISA ROBERTS

Chlorofluorocarbons, better known as CFCs, have been around since the late 1920s. In just over 60 years, these man-made chemicals have drastically affected the earth's atmosphere.

Regardless of what measures are taken now to stop their use, the damage will continue. In fact, the ozone layer, our protection from the sun, will be destroyed by CFCs at an increasing rate for decades before it begins to recover. This is scary.

The ozone layer was not extensive to begin with. At the pressure of sea level it would be about as thick as a pane of window glass. Yet this layer stops most ultraviolet radiation from reaching the earth's surface. At least, it used to.

Even in the mid-eighties, it was estimated that 12 per cent more radiation was reaching Ottawa than in the 1950s. Correspondingly, dangerous skin cancers have risen by 50 per cent in the past ten years. Again, it is expected, because of latency periods after exposure, skin cancer cases will escalate in coming decades. It is going to get worse, not better.

Nitrous oxide, methane, and other chemicals can also destroy ozone, but until the creation of CFCs, the process of ozone production and destruction was at an equilibrium. CFCs were considered wonderful when introduced, and due to several desirable qualities quickly replaced other chemicals.

One of these "desirable" qualities is that CFCs have low solubility in water. Whereas most other chemicals fall as acid rain, and thus never reach the stratosphere, CFCs reach this level containing the ozone layer about ten years after emission — from old refrigerators, air conditioners, aerosol sprays, and so on. When struck by ultra-violet light

from the sun, the chlorine atom breaks off the compound. This then acts as a catalyst for a reaction which turns ozone into oxygen. It is estimated that one chlorine atom from one CFC molecule can destroy 100 000 ozone molecules before it is finally neutralized.

The chemical equations explaining ozone destruction were first formulated in 1974 by two researchers, F. Sherwood Rowland and Mario J. Molina. They sounded the warning 11 years before the actual hole in the ozone layer over Antarctica was discovered in 1985.

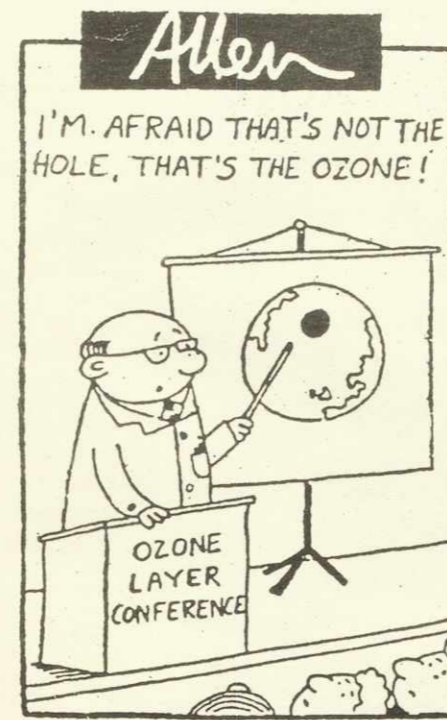
The evidence had been in American hands for ten years in the form of data collected by satellites, but the computers had not processed the data because they had been programmed to treat such things as impossible.

"We have data back to 1957, and from then until the mid-seventies, there was no ozone hole," said Rowland.

In March, 1990 a hole was found over the Arctic confined within the polar vortex, the circling winds over the pole. This year the potential exists for the ozone layer to "be temporarily depleted in the late winter and early spring by as much as 40 per cent" over "the northernmost parts of the US, Canada, Europe and Russia." (Lemonick, "The Ozone Vanishes," Time, Feb. 17, 40).

Chloride is present in record high levels and it will react with the ozone within the polar vortex if the vortex holds until the sun comes up over Antarctica after months of darkness. If not, then it will inevitably happen next year, or the year after, or the year after that. And when one realizes that every one per cent drop in ozone could result in one to three per cent increase in skin cancer, the impact is obvious.

This is, of course, a global problem. All countries and all species will be affected. Phytoplankton, the last link on the ocean's food chain, may be drastically affected. And increased ultra-violet radiation on plants could cause plant stunting, reduction in leaf area, and



reduced physiological vigour — making plants vulnerable to pests and disease. During a six year study at the University of Texas, it was found that a 25 per cent decrease in ozone resulted in a 20 to 25 per cent loss in yields on the test crop of soybeans.

Global problems require global solutions. Canada and the United States, along with many other signatories to the Montreal Protocol, have pushed ahead the deadlines for the phasing out of CFCs. There is concern however, that as environmental regulations are tightening in Western countries multi-nationals are moving to developing nations.

The ozone layer and CFCs know no borders. It is the responsibility of Canada, and other nations which enjoy relative prosperity, to help developing nations switch over to environmentally inert substitutes for CFCs. Hopefully we'll learn from this experience, and not allow our other environmental problems to reach such drastic proportions.

## Carmanah Contrasts

BY T. FLEMING

Nodding off. Having dust waft into my nostrils and a sense of bumpily continuing upward — upward to a place of uncertainty and fame.

I jerk awake and upon opening my eyes I behold a nightmare yet a stark reality. Dull grays and black cloak the landscape. Stumps where trees once towered, their skeletal roots exposed, are poised atop rock out-croppings. Charred poles and sticks, scattered in disarray, cover the remaining areas. High hilly ranges stretch to the horizons. Each conical knoll is bald and stubbly like many shaved heads. The green life once so lush on these hills will not grow to its previous grandeur in my lifetime. In fact, maybe never. I realize this with a feeling of loss and with a sense of being cheated.

Ahead I can see the blunt edge of an ancient forest. Cedars with fluted bases fork upward. Their canopy is sparse and gray-green in colour. This triggers the memory of a comment lightly made by a fellow biologist to describe such a sight: "green ghettos." How can these trees be "merchantable," I ask myself?

I composed this description after returning from my first trip to Carmanah which, at the time, in spring 1989, was only a proposed park. Clearcut logging had taken place for miles around right up to the edge of the tree farming licence in which Carmanah is located. It seems to me now it also represented the time I became painfully aware of what was happening to the very last of Vancouver Island's ancient outgrowth rain-forests.

Over the past ten years or so, various organizations and committees of the American Pacific Northwest have been researching the old-growth forest and have proposed its definition. Only recently has the B. C. Forest Service initiated old-growth research, somewhat more frantically, however. They suddenly awoke to realize Vancouver Island and coastal B. C. have more clear-cut areas than forest.

Many people whose livelihoods depend upon

the lumber/wood fibre industry in B. C., including the politicians of our present government, do not see the point of preserving old-growth. They say it is decadent timber which must come down to make way for a "productive" new forest. This is a paradox, however, because old-growth forests are the culmination of centuries of organic cycling, housing a diverse biota biologists are only beginning to describe.

*generations may never experience the vast biodiversity unique to these forests*

Forestry companies currently use clearcut logging almost exclusively. The perpetual cycle of logging, burning, planting, stand thinning, then logging, burning, planting... ad infinitum, will not result in "productive" new forests. It will result in, at the very least, nutrient-depleted soils beneath a sterile monoculture of conifers. This new forest has no structural diversity; having an even-aged closed canopy and little understorey shrubs or trees. Indeed, it has none of the attributes of an old-growth forest.

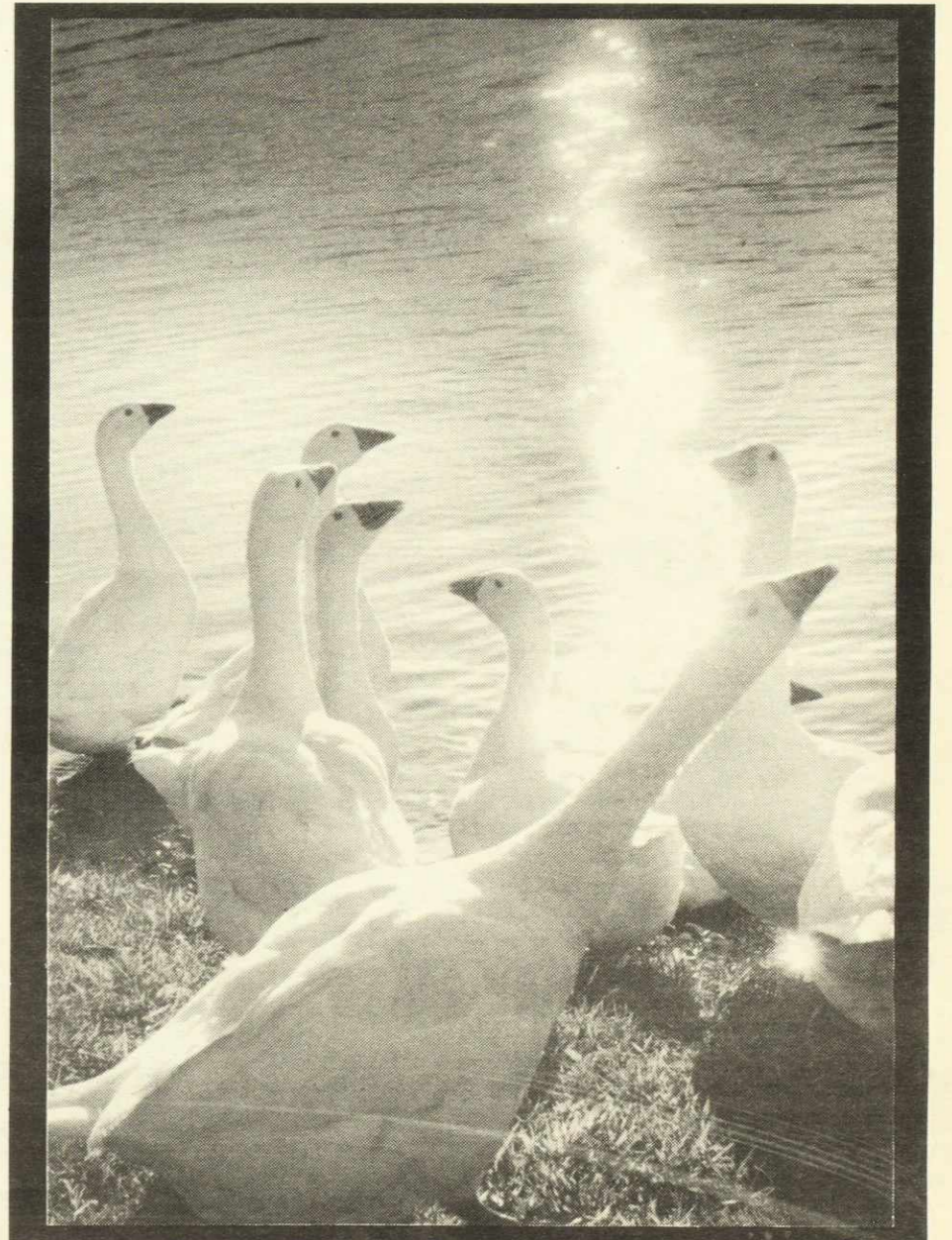
The ecosystem is a complex of interrelated and inseparable flora and fauna that cannot continue to function when simplified by cur-

rent crop forestry practices. Many of the public do not understand, and indeed, none of us do completely, the wonderful biodiversity of old-growth forest ecosystems. Can we help these people to understand what intrinsic value means? That some things cannot have a dollar value placed upon them? Well, yes, we can try.

"One problem is the difficulty for the general populace to understand and relate to the concept of ecosystems. It is much easier for people to understand money, jobs, and self. As biologists we must make it an important goal to educate the public, as education is the key towards a more sympathetic approach to nature," says the guest editor of the summer 1990 edition of *Biolone*.

Sadly, most of our ancient first-growth forests are already gone; the remaining stands being mostly fragmented or patchy at best. Soon clearcut logging of first-growth timber will halt whether or not some is preserved simply because supply will run out. With our present cut rate we are only quickening the inevitable.

Why not set aside the remaining old-growth (at least that of Vancouver Island and the coast) for our children to appreciate and study? Old-growth that is clearcut today may never again be achieved considering a forester's 50 to 80 year rotation strategy. Even if a clearcut is never again disturbed by man it will not attain old-growth stature in our great-grandchildren's lifetime. Generations may never experience the vast biodiversity unique to these forests. Why not just let them be? Just because it is? Instead of learning too late what it was.



DAL PHOTO: MARIA PATRIQUIN

## Harbouring hazardous waste

BY SUSAN ARSENAULT

As I walked along the beach for the thousandth time that summer, I wondered what little surprises I would find that day. However, before treasure hunting began, there were a few precautions to be taken. First the rake, then the rubber gloves.

This daily routine proved to be an interesting endeavour. Items found upon our lovely beach included many paper and plastic items from the canteen, along with an assortment which had washed up overnight.

I cannot begin to count the number of times I heard the question "Do people actually swim in this water?" Well, the answer to that question, to all those who have been dying to ask is, yes. I had to swim in it because it was part of my job, and to this day I still have the correct number of limbs.

But what is in the water? As of late, there has been much talk in the media about the fate of the harbour. No one can deny that the harbour has been used as the great dumping ground of metro. Here is a little history of what some perceive to be the dumbest mistake Haligonians have made so far.

The Harbour is the reason Halifax was

founded. It is the deepest natural ice-free harbour in the world. It serves many purposes: a military base, container piers, recreation, fishing, cooling water for industry, water for research and institutions, transportation, and of course a marine ecosystem. The first pipes were installed in the 1850s, after 100 years of dumping. At that time, the world was seen as infinite.

Today, unfortunately, we are faced with the reality that this is not so. It is true the amount of damage in those early years was negligible. Today there are forty outfall sites from which raw sewage is dumped. The sources are domestic, industrial, and atmospheric and urban runoff.

Sewage is wastewater. The characteristics vary according to factors such as location, population, industry, season, etc. The composition is around 99.9 per cent water to .1 per cent solids. These solids consist of organic and inorganic materials, and gases.

One of the organics which we are concerned with is fecal coliform. This is checked for on a weekly basis to ensure safety of swimming areas. Surprisingly enough, the concentrations are lower in the Harbour beaches than in some lakes. This is mostly

due to the low temperature of the water.

In order for a beach to be closed down in Halifax the concentration must be over 200 coliforms/100ml. If the concentration is over 14/100ml then shellfish harvesting is banned. Trace metals also accumulate in shellfish.

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This can be toxic to animals who feed upon them. No shellfish can be harvested from our shores.

The levels of inorganics in the Harbour is similar to those around other shores, although the levels increase closer to the sewage plumes. Some metals, such as zinc, are in higher concentrations. The effects

of this are yet to be seen.

Litter is a big concern. This is the most obvious of the pollutants. A survey conducted by the School of Resource and Environmental studies found 250 000 pieces of litter in one sampling. It is estimated that 22 per cent were from sewers and the rest from boats and shore. Not only is this unsightly but it can be a hazard to wildlife. The rings which hold together beer and pop cans can get caught around the necks of birds and small animals and suffocate them.

I have watched the effects of litter on our beaches. One day a group of children were playing near shore and a boy held up what appeared to be the insole of a shoe. At least that is what he tried to convince us it was. In reality it was a thin feminine napkin. The girls seemed to know the difference. Even so, I later observed another group of children decorating their sand castles with the multi-colored tampon applicators.

These "treasures" are not as commonly washed up as rumours may tell. Luckily these are usually properly disposed of. It is a much greater problem on McNabs Island

because they are not cleaned up as often.

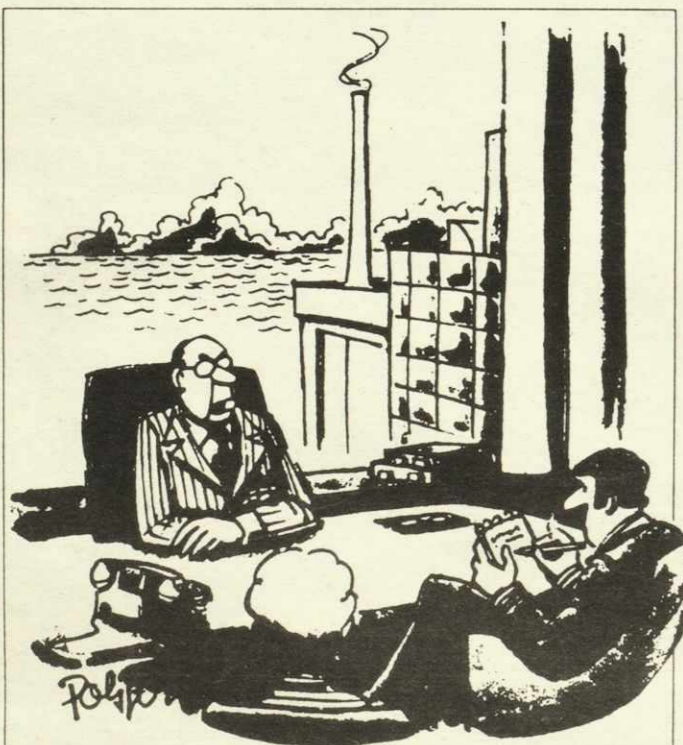
There are ways to control this pollution. There is the obvious source control where the three Rs (reduce, reuse, recycle) are applicable.

There are also treatment plants. Treating the wastewater produces sludge. The fate of the sludge is presently being debated. It can be used as fertilizer, although the toxic levels may be too high. A modern idea is to convert it into an oil product.

There are two existing sewage treatment plants in Halifax county. These were built because of laws governing separate sewer outputs in new developments. The total treated outflow for metro is 20 per cent.

The guidelines for the Harbour cleanup can be found in the "Final Guidelines" set out for the Halifax Harbour Cleanup Inc., and in the "Final Report" by the Halifax Harbour Task Force. This and other literature can be borrowed from the N.S. Dept. of the Environment library (use inter-library loan).

In the summer when you go to the beach remember that it is safe to swim but I would suggest a shower afterward.



"It's not my factory that's polluting the lake...It's all those dead birds that're doing it."