Halifax Field Naturalists Newsletter

SEPTEMBER-NOVEMBER, 1986 No. 45

return address:
Halifax Field Naturalists
c/o Nova Scotia Museum
1747 Summer Street
Halifax, N.S. B3H 3A6

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SEPTEMBER - NOVEMBER, 1986 No. 45

OBJECTIVES: To encourage a greater appreciation and understanding of Nova Scotia's natural history, both within the membership of HFN and in the public at large. To represent the interests of naturalists by encouraging the conservation of Nova Scotia's natural resources.

MEETINGS: First THURSDAY of every month at 8.00 pm in the Auditorium of the Nova Scotia Museum, 1747 Summer Street, Halifax.

FIELD TRIPS are held at least once a month *****and it is appreciated if those travelling in someone else's car share the cost of the gas.

MEMBERSHIP: Open to anyone interested in the natural history of Nova Scotia. Memberships are available at any meeting of the Society, or by writing to: MEMBERSHIP CHAIRMAN, HALIFAX FIELD NATURALISTS, c/o N.S. MUSEUM. Individual memberships ... $7.00 per year
Family " ...$10.00 " "
Sustaining " ...$15.00 " "
This covers HFN fiscal year ... JANUARY 1 to DECEMBER 31.

Members receive HFN Newsletter and notices of all meetings, field trips and special programs.

EXECUTIVE 1986:

President	Michael Downing	823-2081
Treasurer	Bernice Moores	422-5292
Secretary	Leigh Mazany	455-8592
Past President . . .	John van der Meer	455-1029
Membership	John van der Meer	455-1029

DIRECTORS: 1986: Chris Corkett, Connie Eaton, Ursula Grigg, Regina Maass, Clarence Stevens, Colin Stewart, John Strong.

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HFN is incorporated under the Nova Scotia Societies Act.
HFN is a member organisation of the Canadian Nature Federation.

hfn news

HFN ANNUAL GENERAL MEETING

THURSDAY - MARCH 5, 1987

Annual business will include Election of Officers for 1987 ..... it is not too early to think about nominations to the Executive and Board of Directors. If you would like to serve or wish to nominate another person, call Michael Downing, President, at 823-2081, or mail your nominations to

Nominating Committee
Halifax Field Naturalists
1747 Summer Street, Halifax,
N.S., B3H 3A6.

Following the business meeting, special guest, DR.ROGER RITTMASTER will present a slide talk on "Coral Reefs", and, as usual, light refreshments will be served.

WELCOME TO NEW and RETURNING MEMBERS:

Debbie Wallace & Terry Eyeland
Ann M. Pyesmany
Kong Eng Khoo, Dr.
Stephen Dempster
Joanne Dircks
Martha Dodge (from BNS)
Phyllis Gardiner
David and Louise Gass
Brian Grimard
Susan Hawkins
Elizabeth & Stanislaw Gutt
Carol Pye, Dr.
Monica Gramse
James and Mary Rice
Marjorie Austin
Elizabeth Campbell
Martin Gibling
Madelyn Ruhloff
Adrienne Scott

Getting near the end of the year again and time for a hearty THANK YOU to all those who have spent a little of their valuable time in helping with the Newsletter, either by contributing articles, field trip reports, nature notes or illustrations, or by helping physically to collate, fold, label and mail each issue. Couldn't manage without you!

As with all volunteer societies, we need all the help members can give, not only with the Newsletter, but with all the many other aspects entailed in maintaining a healthy, lively club. Whether it be presenting a talk, leading a walk, participating in an HFN special project - or making tea at the monthly meeting - all efforts are welcome. So - please keep them coming.

Editor.

1986 CANADIAN NATURE FEDERATION CONFERENCE.

"Our Island Ecology - a Vanishing Wilderness" was the theme of this year's Canadian Nature Federation Annual Conference, held at Memorial University, St. John's, Nfld., from 23-26 July.

The isolation provided by the ocean, combined with a demanding climate and rugged geology makes the flora and fauna of Newfoundland biologically unique. Although some of the oldest settlements in North America can be found in Newfoundland, much of the island remained a wilderness for many generations.

However, 20th century technological changes have had many effects on the ecology of the island and the surrounding seas, the full consquences of which cannot yet be appreciated, but one thing is certain - Newfoundland is rapidly losing its wilderness character.

The 1986 Symposium provided a chance to look at these concerns as a coherent unit and addressed three aspects of the island's fragile ecology: valued habitats, valued species and valued sites. The speakers explored the special characteristics, the major threats and the steps which can be taken to preserve Newfoundland's disappearing wilderness heritage. Through this systematic approach, a special appreciation was gained for the island's unique and precious ecology and an insight into what must be done to preserve it in the face of competing pressures for development.

In addition to the lectures and the annual general business meeting, a program of optional field trips and pertinent attractions was arranged. A special three-day pre-Conference "Newfoundland Discovery Package" offered participants an opportunity to explore many facets of Newfoundland's rugged wilderness. It featured whale watching at St.Vincent's Beach; a trip to Trepassey wilderness to view caribou , moose, etc.; a boat tour of Witless Bay to see puffins, murres, icebergs and whales and try one's hand at 'cod-jigging'; a visit to the spectacular gannetry at Cape St.Mary's, plus side trips to areas of wildlife and scenic interest.

Post-Conference tours for those who wished to stay on and explore further, included a closer view of whales, this time in Trinity Bay; a sampling of the province's most unique geological and topographical flora and fauna and a look at evidence of early human settlements almost 4000 years ago.

Millie Lawrence, one member of a group that went to the Conference from Halifax, found it a rewarding and enjoyable experience, and shares some of her personal highlights with us:

The group headed for Newfoundland on July 23. It was foggy, wet and rough. Although most of them stayed at Memorial University, a few enterprising folk camped at Pippy Park.

Millie joined an early-morning walk to Oxen Pond Botanical Gardens to look at the flower and rock gardens and to learn more about native species. Bernard Jackson, the leader, also advised on how to create a 'backyard habitat' by plantings specifically attractive to butterflies. The Gardens walk was followed by a birding trip along woodland trails and ponds.

Later, during the Symposium, Dr. Jackson presented a most interesting slide-talk on Butterfly Farming.

An opening Wine and Cheese reception was held at the Department of Fisheries where many interesting fish and ocean exhibits were on view.

Day trips were many and varied and it turned out to be a beautiful day for the boat trip to Witless Bay. Millie says they were lucky enough to see a minke whale and many seabirds including puffins, murres, kittiwakes and gannets. They even had time to laze in the sun at LaManche Park before returning to St. John's.

Another sunny day favoured the group's excursion to Butterpot Provincial Park, with its wonderful hiking and birding through the characteristic boreal forest of the island. A climb to the top of Butterpot - a historical navigational aid for sailors - afforded the climbers a beautiful view over Conception Bay. Exploration of Park flora produced a variety of orchids, including white fringed and leafy white, and pitcher plants, also bakeapple ripe enough for eating.

'Newfie Night' was a great success, with a menu of traditional island favourites from land and sea, followed by a 'Screech-in' which involved drinking Newfoundland 'screech' and kissing a large,wet codfish!!

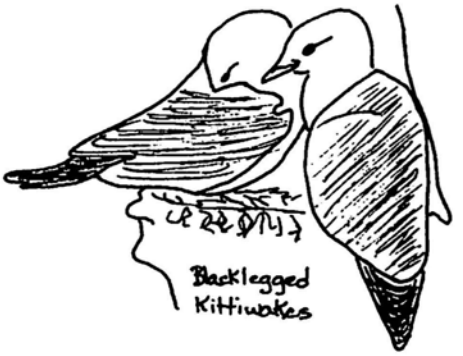
The Symposium itself covered all aspects of the island ecology and the vanishing wilderness. The half hour talks were both interesting and well-presented. Millie feels that all the participants learned much but have still more to learn and understand about our land.

A highlight of the Conference came at the closing banquet when the special guest speaker Tom McMillan, Minister of the Environment, announced that South Moresby has been designated to become a National Park.

Next year's CNF Conference will be held in Saskatoon. Millie is already asking if anyone is interested in attending!

(BOB and WENDY McDONALD also sent in a report on the 14th Annual Conference of the CNF - their's from a quite different angle to Millie's. Where there was an overlap I took the liberty of deleting - Ed.)

The Conference began for us on the CN Ferry crossing from North Sydney to Argentia where on the foredeck of the "Ambrose Shea", we met a group of naturalists who had been on one of several pre-conference tours leading from Central Canada to St.John's. We were combining family holidays and the conference so leisurely toured the province over the next two weeks. On board we caught brief glimpses of both 'wintering' Wilson's and the locally breeding Leach's storm petrels, black-legged kittiwakes, gannets (mostly immatures) and a Pomarine jaegar.



... en route to St.John's we decided to visit the famous seabird sanctuary at Cape St.Mary's. The fog lifted and the day cleared just as we arrived at the Cape. On our way down the gravel road we had just scared up a covey of willow ptarmigan. The scene at the rock was terrific; there cannot be many other places where one can observe thousands of gannets on a rock 15 metres away from dry land. The helpful interpretive naturalist at the viewpoint was also able to point out one or two pairs of breeding thick-billed murres and razorbills among the tens of thousands of thin-billed (common) murres.

At our campground that evening at Fitzgerald's Pond Provincial Park, a cow moose, nibbling in our backyard, provided the evening's entertainment.

We spent the next four days based in St.John's, in Residence at Memorial University...

In the mornings, clutching their brown bag lunches, conference delegates boarded buses for the many interesting field trips planned...

The scientific day 'Our Island Ecology -- a Vanishing Wilderness' proved to be most informative with speakers touching on many aspects of Newfoundland natural history including Terra Nova Park, the coastal mammals, butterfly 'farming' in Oxen Pond Botanical Gardens. The neighbours of St. Pierre et Miquelon presented a dramatic look at the fast-disappearing beach and marshlands, threatened as are our own habitats by man and the popular motorised recreational vehicles...

The CNF staff set up a mini-bookstore featuring many of the books available through their Natureline - an easy way to shop. Our one regret was the lack of children's programming, a feature at CNF Conferences in the past.

As a family, we added to the visit to St.John's by visiting the local museums, craft shops and parks as well as Signal Hill. Not to be missed was a trip to the Fish and Chip shop for the best 'English' style feed.

After leaving St. John's we visited Terra Nova and Gros Morne National Parks - both a must for the first-time visitor to the province. We plan a return visit to the latter to try and see the elusive rock ptarmigan. The interpretative programs at both parks added significantly to enhance our visits to the woodland and coastal trails. Seashore campfires at Gros Morne complete with Newfie jokes and stories followed by tea made the day - even in the rain!

The provincial flower, the pitcher plant, was evident in all the bogs, as were many orchids, pink and white. The Provincial Park system - picnic and camping - is comprehensive so that there is always a picnic table come lunch time. The evidence of extensive forest fires along the highways and even in the parks, reminded us of man's carelessness at times.

We were grateful for CNF having prompted us to go to Newfoundland for our holiday. Next year the Conference will be in Saskatchewan in early June, helping that province to celebrate Wildlife '87 (a tribute to 100 years of wildlife conservation) where the first Canadian nature reserve was established at Lost Mountain Lake, south of Saskatoon.

Bob and Wendy McDonald.

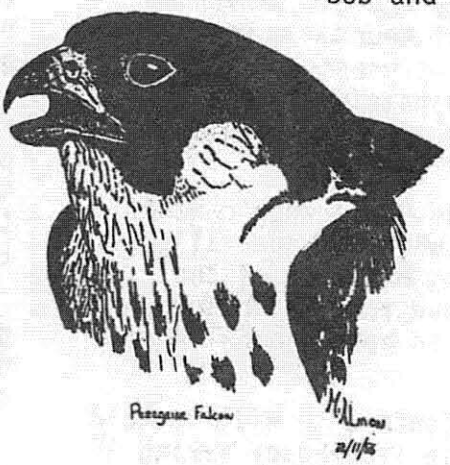
notices

Exploring new ways TO INCREASE OUR MEMBERSHIP and to heighten our PUBLIC IMAGE are two of the goals your Board is striving to achieve.

With this in mind, a half-day Workshop entitled PROMOTING YOUR GROUP, sponsored by H.F.N., is to be held on -

SATURDAY, JANUARY 10, 1987
at
NOVA SCOTIA MUSEUM
from
9.30am to 12.30pm

Will INTERESTED MEMBERS please contact Connie Eaton (423-6971), or John Strong (477-1351) ON OR BEFORE our December 4 regular monthly meeting?



from N.B. Naturalist, July 86

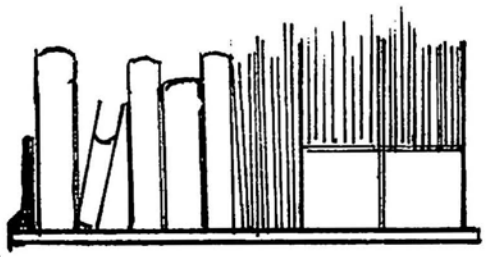
Peregrine Falcons -

Canadian Wildlife Service is once again asking for help in locating peregrine falcons and possible nests,as a follow-up to their program of releasing young peregrines in an effort to re-establish their population after elimination by DDT. CWS hopes that some of the released falcons will have nested this year. The birds may turn up anywhere but the most likely sites include Minas Basin, from Cape Enrage to Cape Spenser and Grand Manan. Nests are usually located on ledges on high cliffs.

If you see peregrines, contact:

Bruce Johnson, C.W.S.,
Sackville, N.B., OR

Stephen Woodley
Fundy National Park, Alma, N.B.



on the shelf

PARKSCAN has published an interesting fact sheet on Cape Breton Highlands National Park, mapping and describing climate, topography, geology, biophysical classification of the land and marine regions, and flora and fauna. Nova Scotia Museum has copies of this factsheet.

AQUANOTES is the title of a neat, new version of the newsletter published by the Nova Scotia Aquaculture Association. For anyone interested in the subject of aquaculture there is a copy on our library shelf but for more information on the Association call Chris Corkett, 424-2565.

CATHERINE TRAILL NATURALISTS' newsletter No.112, September 1986, contains as the main feature "Banff Diary" - a comprehensive account of the Banff Alpine Workshop held for ten days in June last. Written by individual participants, each of whom took responsibility for one small section, it provides excellent coverage of a most interesting event.

N.B. NATURALIST newsletter, July 1986, offers its usual diversity, including an article on "Rare and Elusive Violets of New Brunswick" and a couple of notices which are detailed elsewhere in this HFN newsletter .

N. S. BIRDERS' FALL FLIER, containing their upcoming field trips program is a new item on the library shelf. A membership form is included.

Our other 'regulars' - the latest issues of newsletters from Prince Edward Island, New Brunswick and Catherine Traill Naturalists are also on the shelf.

nature notes

DISCOVERING BRYOPHYTES

It's not easy to pass quietly through a moss-carpeted forest without feeling a certain reverence for the lush growth that yields gently to our weight. It has a strangely child-like appeal, yet we seldom linger to examine this living mantle of vegetation we call moss. The mosquitoes urge us to move on and even in the respite of autumn, finding a dry spot to sit proves futile. For much the same reason, we skirt around bogs and avoid wet hollows where moss communities flourish in secret solitude.

Rarely chronicled in field notes, we make only cursory observations about sphagnum hummocks or moss-covered logs. Without showy flowers to lure us closer to the ground, these delicate tiny plants go largely unnoticed. Too often we seem content to limit our perspective of the natural environment to the superficial details around us. With an erect posture it's not hard to overlook the smaller wonders at our feet. What we see depends a lot on what we look for.

To the casual eye, one patch of moss looks much the same as the next. It's a case of not seeing the trees for the forest. Only when we take the time to study these gregarious little plants up close, do we begin to appreciate their individual uniqueness and the almost infinite variety of form they exhibit. Indeed, over 1100 species of moss grow in North America. At least 350 of these can be found in the Maritime Provinces. Here - under our noses - is a fascinating new world to explore.

Some, like the 'feather mosses' spread in prostrate mats with numerous lacy branches. Others grow in erect tufts and have the appearance of miniature pine forests. Leaves may be twisted, warty, curved like sickles, toothed, needle-like, folded in various ways, wrinkled, or almost circular. Capsules when present show a similar diversity in shape and structure.

Although they thrive in the moist, shady habitats of forests, mosses can be found almost everywhere. Some species grow best on exposed rocks in full sunshine; others are truly aquatic and live submerged in brooks and ponds. Sphagnum mosses tend to dominate the surface of bogs while certain maritime species grow only in the spray zone along rocky coastlines. Still others are found exclusively on dung or limestone. Many cosmopolitan species grow happily on a variety of substrates. Even in the city, mosses can be encountered in lawns and ditches and on sidewalks, buildings, stone walls and roofs.

Keying out individual species is challenging detective work that often requires a microscope. Many genera can however, be identified with only a hand lens. Even under low magnification the remarkable diversity of this plant group becomes apparent.

Collecting mosses can become a life-long hobby for the amateur botanist. Unlike most plant collections, mosses do not need to be pressed or mounted. Specimens dry readily without fading or deterioration. They can be kept in envelopes or custom-made 'packets'. Several dozen of these fit easily into a shoe box. Dried mosses can later be brought back to their original freshness by simply soaking them in water.

Local bookstores are not likely to reward the curious with field guides or references on the subject. Anyone interested in learning more about the ecology or identification of mosses may have better luck at the public library. One of the best texts I can recommend for keying-out various species and genera is: Moss Flora of the Maritime Provinces, by Dr. Robert Ireland. Profuse with illustrations, this substantial work is published by the National Museums of Canada and sells for a very reasonable price.

Why not take a hand lens along on your next outing and discover for yourself the aesthetic appeal of these neglected plants. A variety of good loupes and magnifiers can be purchased for under $20 and would make an excellent Christmas gift idea for any naturalist.

Good luck - and good hunting!

Brian Grimard

ECOLOGICAL SITES—

The problem of safe-guarding our Ecological Sites has been exercising two of our supporters - BARRY GOLDSMITH, in Nova Scotia on a three month research visit from Gt. Britain, and HFN'er, JOHN BROWNLIE, at present on staff at Kejimkujik National Park. Both of these appeals are included in this issue of the Newsletter.

WHERE ARE NOVA SCOTIA'S NATURE RESERVES ?

In a province with over 70% forest,at least some part of that area should be sufficiently rich biologically to justify designation as nature reserves. However, most members of HFN will realise that there are no forest natures reserves in the province. The only areas protected are National Parks and Provincial Parks which are set aside with different objectives and are used in different ways.

Interest in the subject of nature reserves, or ecological sites as they were originally termed, was started in 1971 when the Nova Scotia Museum became the operational base for the International Biological Programmes Conservation activities in the Maritimes. Field crews went out and identified 69 candidate areas in Nova Scotia which were incorporated in an excellent report published in 1974. Meanwhile, the Canadian Institute of Foresters, who are not generally considered to be conservation orientated, recommended that forest reserves in Canada should be at least 300 acres in extent.

Pressure from various sources resulted in legislation being passed in Nova Scotia 1980. It was an Act for the Protection of Special Places (Act 29 Eliz II Ch.17) but so far no areas have been designated for their ecological interest. However, there are a few geological sites protected by this means. The Museum has appointed Bob Ogilvie as its Curator of Special Places and he would be prepared to supply HFN members with more information on this important topic . (Phone No. 429-4610). He has prepared for example, Curatorial Report No. 49 which lists all the proposed sites and this identifies some excellent areas for field studies. However, before any areas are likely to be designated the Minister of Education needs encouragement in the form of letters to show him that there really is a demand to set aside representative areas of forest and areas containing rare species, so that they are not harvested or developed in other ways.

Therefore we urge you to write to Hon. Thomas J. McInnis, Minister of Education, P.O. Box 158, Musquodoboit Harbour, BOJ 2LO and to ask him why no reserves have so far been designated, whilst proposed sites are being damaged by logging and other activities. Why not send a copy of your letter to your MLA as well? Whatever you do please make sure that you write. Ministers and MLAs only need to see about a dozen letters on a particular subject to believe that there is widespread concern.....Please write.

F. Barry Goldsmith (23.9.86)

LOCAL MEMBERS OF THE LEGISLATURE

Hon.Ken Streatch (PC) - Bedford-Musq.V. -	Elderbank,	Halifax Co.,	BON IKO
Hon.David Nantes (PC) - Cole Hbr. -	30 Fireside Dr.,	Dartmouth	B2V 1Z1
Dr. James Smith (L) - Dmth. East -	110 Woodlawn Rd.,	Dartmouth,	B2W 2S8
Hon.Laird Stirling (PC)- Dmth. North -	96 Chappell St.,	Dartmouth,	B3A 3P8
Hon.R. Thornhill (PC) - Dmth. South -	P.O. Box 519,	Halifax,	B3J 2R7
Hon.John Buchanan PC.,QC.,(PC) - Hfx.Atlantic -	3 Leiblin Dr.,	Halifax,	B3R 1N2
Hon.Joel Matheson QC., (PC) - Hfx.Bedford Basin -	30 Robert Allen Dr.,	Hfx.,	B3M 3G8
Alexa McDonough (NDP) - Hfx. Chebucto -	1581 Conrose Ave.	Halifax,	B3H 4C4
Hon.Arthur Donahoe QC(PC) - Hfx. Citadel -	2190 Armcrescent East,	Halifax,	B3L 3C7
Hon.Terence Donahoe QC (PC)- Hfx. Cornwallis -	1641 Walnut St.,	Halifax,	B3H 3S3
Hon.Tom McInnis (PC) - Hfx. Eastern Shore -	P.O.B.158, Musquodoboit	Hbr.,	BOJ 2LO
Hon.Edmund Morris (PC) - Halifax Needham -	15 Fleming Drive,	Halifax,	B3P 1A8
Jerry Lawrence (PC) - Hfx. St. Margarets -	Site 13, Box 54,RR#2,	Tantallon,	BOJ 3JO
John Holm (NDP) - Sackville -	30 Nictaux Dr.,	Lower Sackville,	B4C 2C2

(Chris Corkett has a complete list of MLA's and there is also a copy on the HFN Library Shelf in the foyer of the Nova Scotia Museum - in the Government Bumf box).

ECOLOGICAL SITES - WE CAN HELP

When you have something special - like a brooch handed down to you from your grandmother - you take special care of it. You keep it in a safe place.

Nova Scotia has many special treasures: rare plants, old growth forests, important bird nesting sites. No less than 80 natural areas have been selected to become ecological reserves - safe places for these rare and unique treasures. But, none of these areas have been formally designated as an ecological site. None are legally protected against environmental damage by human activities. So - who's looking after our ecological sites?!

Until 1985, no one was. At least no one was officially appointed. But Paul Keddy, founding member of Halifax Field Naturalists in 1975, appointed himself. He knew, at first hand, the danger by cottage development to rare plants growing along a chain of lakes in the Tusket River System. Several of these plants grow nowhere else in Canada. He has worked for several years to prepare an inventory of natural resources and a management plan for the area, Through his efforts a site on the Tusket River will become Nova Scotia's first ecological reserve. The land has already been purchased by the Nature Conservancy, and once the management plan is approved, a very special community of rare plants will be officially and legally protected.

The first is always the hardest. Now, the Halifax Field Naturalists could perhaps continue the efforts of Paul Keddy by choosing a site to visit, recording our observations on plants and animals, and proposing management plans. It's a big job, but we are not alone. Bob Ogilvie at the Nova Scotia Museum in Halifax, began working in January 1985 to help speed up the formal designation of selected sites as ecological reserves. He can act as a catalyst and guide the results of our field trips through the administrative bottlenecks until the site we choose to work on gains legal protection under the Special Places Act.

I was in the Museum to chat with Bob in October as a follow-up to our recent field trip to Carter's Beach, a proposed ecological site. And things are indeed happening. In addition to the Tusket River site, scientific inventories have been completed for an old-growth deciduous forest in Cape Breton, the MacFarlane Woods site near Mull River. Work will begin on the management plan this winter. Progress on this site began when the land-owner became aware of the importance of his hardwood stand and offered to have it managed as an ecological reserve.

Some sites have come under the protection of the Department of Lands and Forests as provincial parks. A good example is Conrad's Beach, where Linda Morris, until recently a member of HFN, has made a major impact. Boardwalks and interpretive trails will control traffic and notice boards inform the public about fragile sand dunes and the protective role of ecological reserves.

However, protection for the three or four pairs of piping plovers nesting on Conrad's Beach has been lacking. I suggest that a letter from Halifax Field Naturalists may help encourage the Lands and Forests to keep this important nesting area closed to sunbathers until mid-July, diverting the flow of people to the nearby large expanses of beach at Lawrencetown and Rainbow Haven, where plovers do not nest.

As for Carter's Beach, the successful purchase of this area is unlikely with both the federal and provincial governments establishing parks nearby. Also, other sand dune ecosystems in Nova Scotia have already gained protection as provincial parks. Bob suggested instead, two proposed ecological sites near Halifax: the Saint Croix River and Shubenacadie sites.

The Saint Croix River site, near Windsor, is an area of karst topography where funnel-shaped depressions and sinkholes indicate the presence of gypsum deposits beneath the rich soil. The forest of white spruce and red oak harbours two of Nova Scotia's rarest orchids: the ram's head lady's slipper and the yellow lady's slipper. Definitely an exciting site to visit and study.

The Shubenacadie site, at first glance, seems a strange choice for an ecological reserve - it's been logged several times. A second look reveals an extremely rare shrub for Nova Scotia, leatherwood, growing up in the clearings. Other plants found growing at this site with only a scattered distribution in the province are: the bulblet fern, alder-leaved buckthorn, and two of our rarer grasses.

Other possible sites in the Halifax area are at Duncans Cove, Bear Cove and Kidston Lake. All of these sites were identified by the International Biological Program in the early 1970's, and information files are maintained for each of them at N.S. Museum. By visiting these sites and recording additional information for the files, we can contribute to the scientific evaluation required before they can be designated.

As field naturalists who already visit and enjoy many of these special areas (Conrad's Beach, Cape Split, Hayes Bat Cave, Carter's Beach) we have an important role to play in the establishment of ecological reserves. Observations on plants and animals at a proposed ecological site can be more meaningful for us when they help to preserve such areas for future naturalists to enjoy.

Oh heck! Never mind the future naturalists. What about us? Let's be selfish and protect ecological sites for ourselves to enjoy, here today. I never again want to go to an area of virgin red spruce forest and find a clear cut. Imagine Paul Keddy's anger and frustration when discovering a bulldozer ploughing up Plymouth gentians and pink coreopsis.

So, keep your eyes open on outings to ecological sites next year. Become an active part of habitat preservation in Nova Scotia.

John Brownlie

"NO", by Thomas Hood.

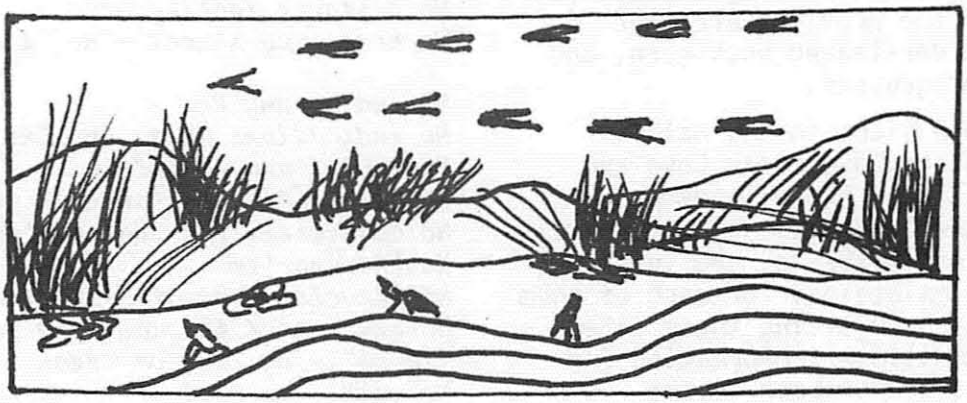
No sun - no moon
No morn - no noon -
No dawn - no dusk - no proper time of day -
No sky - no earthly view -
No distance looking blue -
No road - no street - no "t'other side the way" -
No end to any Row -
No indications where the Crescents go -
No top of any steeple -
No recognition of familiar people -
No courtesies for showing 'em -
No knowing 'em -
No travelling at all - no locomotion -
No inkling of the way - no notion -
"No go" - by land or ocean -
No mail - no post -
No news from any foreign coast -
No Park - no Ring - no afternoon gentility -
No company - no nobility -
No warmth - no cheerfulness, no healthful ease -
No comfortable feel in any member -
No shade, no shine, no butterflies, no bees,
No fruits, no flowers, no leaves no birds -
No-vember!

NEXT DEADLINE -

25 January 1987 for the February issue.

Dont forget - January 1, starts a new financial year for HFN - mail in your dues - and give some thought to Nominations for Officers for 1987.

field trips



A VISIT TO AN ECOLOGICAL SITE NEAR PORT MOUTON

Date: Saturday, September 27, 1986
Place: Wambakeke or Carter's Beach (ecological site near Pt. Mouton
Leader: John Brownlie
Weather: Sunny, cool brisk wind Participants: 17

After enjoying the beautiful autumn colours on our drive south we met John Brownlie at the bridge in Liverpool, from where he led us to Port Mouton and Wambakeke Beach. As the tide was still high we had to clamber over big rocks to reach the beach with its beautiful white sand. In between we took some glimpses into the water with its *Fucus vesiculosis* and eel grass (*Zostera marina*). Among the plants on the sand dunes we determined seabeach sandwort (*Sedum* sp.) knotted rag (*Ascophyllum*) and coastblight (*Chenopodium rubrum*)[in N.Amer.: Orache(*Atriplex patula*)]. Sheltered from the cold wind behind huge rocks on a small tree-crowned sandspit we had lunch and John Brownlie told us about the problems in protecting sand dunes in Nova Scotia. Surrounding the dunes we observed some sanderlings and enjoyed watching isopods (*Chiridotea caeca*) in the lukewarm backwater.

Rosehips and choke cherries were ripe and edible and on the whole walk we saw several beautiful furry caterpillars - probably future moths.

Back in Liverpool we visited the Park warden of the newly-established seaside adjunct of Kejimkujik National Park and had an interesting slideshow as introduction to that wildlife habitat. The park (at St.Catherine's River Beach) includes forest, bogs, saltmarshes and white sandbeaches with protected areas for nesting piping plovers.

Laura Buhrer.

INTERTIDAL LIFE AT EVANGELINE BEACH

A trip to Guzzle Field, Minas Basin, organised by Blomidon Naturalists Society. Twelve people participated, mostly from Acadia; did any HFNers attend? Did anyone run into transportation difficulties from the Halifax end? (I did - Editor!)

Date: Saturday - 26 July 1986
Place: Guzzle Field, Minas Basin (Evangeline Beach at East End of Long Island)
Weather: Sunny, hot, muggy
Leaders: Sherman Bleakney and Jim Wolford

A nice group of the faithful, the fanatic and the foreign (two from Halifax, one from Springfield) gathered at the Guzzle. From our vantage point on the dyke wall, we consulted our information handout sheets and compared the shoreline of 1759 (with its road to Boot Island) to that of a 1946 air photo and to the present shoreline, and noted the rapid erosion of old salt marsh deposits, great blocks of which were evident on the slopes of the Guzzle channel.

Our walk northward along the west margin of the Guzzle outflow, took us back in time to periods of lower sea levels and lesser tidal amplitudes. Remnants of ancient alder thickets; 3100, 3800 and 4400 year-old stumps and trunks of huge hemlock and white pine; 3300 year-old clam shells; and one 3800 year-old oyster valve (probably transported up the Guzzle by winter ice action) were observed. The severity of last winter's ice blocks and tidal action was very evident to those of us familiar with this area. Two of our landmark tree stumps had been torn out, a large tree trunk gouged out and rolled over, and several new long walls of boulders formed.

Upon and within these ancient layers of clay, peat and forest, were many living organisms. First and foremost were the 'zillions' of mud snails (*Ilyanassa obsoleta*), peppering the wet mud surface as far as the eye could see. Our shovels then revealed that just beneath this slippery, nutritious surface were 'towsens and towsens' of *Corophium volutator* shrimps (amphipods actually) in U-shaped burrows, as well as bright-red, thread-thin worms (*Heteromastus filiformis*), and stout-bodied, jawed carnivorous sandworms (*Nereis and Glycera*), and an even larger, proboscis-shooting, white ribbon worm (*Cerebratulus*). And written all over the mud flats was mute testimony as to who really cares about all those yucky things, the little trident foot tracks of thousands of shore birds. The sandpipers had preceded us by several hours, feasting upon worms and crustaceans along the margin of the receding tide. Through the magic of their enigmatic enzymes, those spiny shrimps and wiggle worms become layered fat, the high octane fuel that powers little sandpipers non-stop to Surinam, South America.

Further out from shore, we discovered an unusual clam with a rasping shell False angel wing (*Petricola pholadiformis*), a clam which burrows into hard clay of sandstone or even excavates burrows in the wood of the ancient sunken forest.

When the tide turned, so did we. By then we had reached an area of fishermen's turn-of-the-century staked gill nets. There are many long rows of the bases of their birch posts protruding from the sandy mud.

Many other marine invertebrates were seen, touched, discussed and discarded. We also buried our faces in a tangled mass of recently dead colonial animals, *Flustra foliacea*, and drew in deep breaths of that deliciously refreshing lemon aroma. After nearly three hours of exploration, we all had an enhanced appreciation of the innumerable creatures that thoroughly enjoy life within and upon the yummy muds of Minas.

Oh yes, there were a few other birds seen by someone, sometime during the day, probably seagulls.

Sherman Bleakney.

SECOND SHOREBIRD TRIP WITH BLOMIDON NATURALISTS SOCIETY.

Date: Sunday, September 14, 1986
Place: Grand Pré dyke and Long Island Beach, nr. Wolfville
Weather: Bright but cool strong breeze
Leader: Jim Wolford, BNS
Participants: Eight or nine from BNS and 14-15 from HFN

Six of us BNS'ers met early, in order to do some dickey-birding before the Halifax gang arrived. Right at the parking lot we heard a scared flicker and then saw two sharp-shinned hawks and a merlin. So we just walked around the Historic Park.

We didn't see many warblers, but other songbirds were abundant and fairly diverse. Blue jays were common, some of them in flocks and on the move? A brown-plumaged purple finch was trying to sing a bit? And a cattail swamp held lots of molting red-winged blackbirds, some of them looking ridiculous with the tail short or absent! Also we saw a harrier, a merlin, and an unidentified hawk harassing blackbirds.

In an open dykeland field were black-bellied plovers, golden plovers and knots. But, by the time both clubs united into a nine-car caravan of about 25 people, that field was empty. We drove across the dykelands to a grassy field where we had poor views of black-bellied and golden plovers.

We parked and walked into the east end of Evangeline Beach. On our way, six golden plovers and a harrier flew by, and there was a lot of interest in the various plants still in bloom, including lady's thumb, tear-thumb, asters, goldenrods, sea lavender, highwater shrub, eyebright, etc.

We arrived at the beach too early, in that the tide hadn't receded at all, so we killed time by either walking in the woods (warblers were uncommon and elusive), trying to catch dragonflies, puzzling over flowers, or just lying in the sun. There was a chilly, stiff wind, but not felt at ground level. Eventually along the beach we saw two unidentified terns (unusual in our region), six Hudsonian godwits, 50 black-bellied plovers, five semipalmated plovers, 25 semipalmated sandpipers, 15 red knots, seven sanderlings and two dunlins.

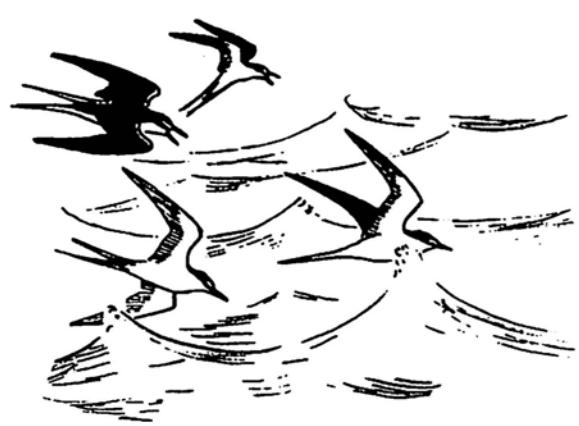
After the gang had disbanded, a few of us noted two partial-albinos in a large flock of house sparrows back at Grand Pré Park. One had conspicuous white wing-patches, and the other was sandy-coloured.

Jim Wolford.

After the group disbanded and some of the HFN'ers had gone back to Halifax, a few of us did a little more touring around, through Kentville Ravine, where we found a few mushrooms and chicory; along the old road into Windsor; purchased veggies, fruit and (of course) ice cream at a wayside stand, and - in accordance with tradition - had supper at Stirlings in Grand Pré. All told, a very enjoyable day.

The plant list included:

Marsh Elder - (*Iva frutescens var/ovaria*)
Purple Aster - (*Aster spectabilis*)
White Aster - (*Aster sp.*)
Knotweed - (*Polygonum pensylvanicum*)
Arrow Tearthumb -(*P. sagittatum*)
Sea Lavender - *Limonium rashii*)
Chicory - (*Cichorium intybus*)
Silverrod - (*Solidago bicolor*)
Queen Anne's Lace - (*Daucus carota*)
Agrimony - (*Agrimonia striata*)
Fleabane - (*Erigeron philadelphicus*)
Deptford Pink - (*Dianthus armeria*).



McNAB'S ISLAND - A WALK THROUGH THE HUGONIN-PERRIN FAMILIES' ESTATES AND GARDENS.

Date: Saturday, August 23, 1986 Participants: 20
Place: McNab's Island, via Ferry service
Weather: Sunny - 68 to 70°F , (25°C); cool breeze
Leader: Alex Wilson, NSM

In winter or summer McNab's is a fascinating place to explore - I, for one, have discovered something new (new to me, at least) on each visit. This time it was the content and arrangement of what had once been a remarkable Olde English garden set in a new, rather harsher world.

On arrival at the Island Alex touched briefly on the colourful history of McNab's, those who had owned land there and the uses to which it had been put - from forts to farming, pop factory to fairground. However, as our objective that day was to look at the sadly overgrown remains of a once-beautiful garden we soon set off up the hill of the Hugonin-Perrin estate.

During the 19th century the Hugonins and the Perrins had been owners of the property and had cleared most of the original woodland - Hugonin the farmer cultivated the land, and the Englishman Perrin who was more of a gardener, later developed the garden. Old photographs and a sketch map, passed around by Alex, showed a handsome house on the hill above a terraced lawn surrounded by native and exotic plantings, grown now to majestic proportions.

Ascending steadily, we passed a copse of black locust with thick, twisted bark, and on to where the entrance gate used to hang, marked by one remaining gatepost standing in a lush mat of brilliant green hairmoss. Beneath the trees we found Indian pipe and several varieties of mushrooms, including fly agaric, one of the highly toxic Amanitas.

Mock orange, lilac, a variety of roses, English hawthorn, large-flowered Japanese barberry and a hedge of common barberry (no longer grown as it proved to be a host to wheat rust) are all disappearing under a jungle of weeds, spruce and alder. At one point we had to push our way through a huge thicket of Japanese knotweed just coming into feathery bloom, which had completely overgrown the path. Near the top of the rise we noted Virginia creeper winding its way to a considerable height in a dense tangle on several tree trunks. "Probably the high humidity had encouraged the growth", said Alex.

In what may have been the old orchard lay an apple tree which had fallen but continued to grow at right angles to its prone trunk, the partially exposed roots still clinging tenaciously to the ground.

From the top of the hill where we had a good overview of the estate, we could see native red pine, hemlock and cedar mingling with the European elm, lime and horsechestnut. Despite the lordly magnificence of the European plantings, to me the most spectacular of the exotics were the two red Japanese maples on either side of the upper terrace and a short-trunked, shapely, widespreading copper beech.

Digressing at one point to look at the burned-out ruins of the old caretaker's cottage - where John Strong noted the extremely wide boards of the original sheathing - Alex drew our attention to two lilacs flanking the building. While not in themselves of any great value, such plantings show how a garden was laid out and what it contained. A clump of horseradish indicated the probable site of a vegetable garden. Such clues can be significant in restoration work.

Now that McNab's has been designated a Park area, it is to be hoped that resources will become available to effect some restoration, including that of this fine old garden. Thanks to Alex and the use of our own imagination, we were able to reconstruct something of the original picture, but how nice if we could see the Olde English garden as it was in Mr. Perrin's day.

After Alex and several others had returned to the ferry slip, the rest of us lunched at the top of the hill with its panoramic view over Halifax Harbour, and spent the rest of the afternoon exploring more of the Island. Vegetation on McNab's is always prolific and on this occasion was no exception. Salt-resistant wrinkled rose was still in bloom and berries were ripening everywhere; meadow sweet and jewel-weed flowered in damp hollows but wood aster and goldenrod had not yet hit their peak.

We zig-zagged through the tangle towards Wreck Cove and walked back along a cobbly beach black with tar, now old and well dried, but unsightly. We deplored the sight of dead campfire sites littered with empty cans and broken glass. On one path a large curving fir branch had been torn down and formed into a sort of shelter with the ashes of a fire inside.

By the time we had made our way back to the wharf it was 5.30 pm and thin cloud was beginning to obscure the sun. No matter, we had had the best of a lovely day.

Among the wild flowers in bloom --------

Arrow-leaved tearthumb	*Polygonum sagittatum*
Common St.John's wort	*Hypericum perforatum*
Marsh St.John's wort	*H. virginicum*
Canada St.John's wort	*H. canadensis*
Meadowsweet	*Spiraea latifolia*
Steeplebush	*S. tomentosa*
Indian pipe	*Monotropa uniflora*
Agrimony	*Agrimonia* sp.
Wrinkled rose	*Rosa rugosa*
Knapweed	*Centaurea* sp.
Wood Asters	*Aster* sp.
Goldenrod	*Solidago* sp.
Jewelweed	*Impatiens capensis*

Doris Butters

A FALL MUSHROOM WALK

On a sunny but cool Sunday, September 14th, fourteen Halifax Field Naturalists joined leader Carolyn Bird for a mushroom walk at Hemlock Ravine in Bedford. The clear weather made walking in the woods a delight. Mushrooms abounded everywhere. A partial list of the species found are listed below. While many of the participants were new to mushrooms, leader Carolyn's enthusiasm and logical explanations of mushroom identification made the walk enjoyable for all.

AMANITA - Some of the most poisonous mushrooms are members of the Amanita family -
- A. *citrina*
- A. *flavoconia*
- A. *virosa* (death angel)
- A. *brunnescens*

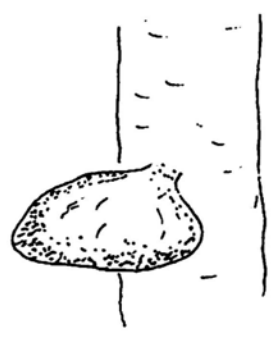
AMANITOPSIS sp. - These are members of the Amanita family.

LACTARIUS - Members of this species exude a latex when broken -
- *L. deliciosus* (excellent edible mushroom)
- *L. rufus*
- *L. deceptivus* (very acrid taste)
- *L. chrysorheus*
- *L. camphoratus*
- *L. griseus*
- *L. lignyotus*

RUSSULA - The members of this family have very brittle flesh -
- *R. virescens* (green)
- *R. lutea* (yellow, edible)
- *Russula spp.* (grey, brown, red)

HYGROPHORUS - The gills are spaced a little more and are waxy -
- *H. puniceus*
- *H. psittacinus*
- *H. miniatur*
- *H. marginatus*

LACARIA -
- *L. laccata* (edible)



OMPHALINA sp.

MARASMIUS sp.

PLEUROCYBELLA PORRIGENS - This is a thin white edible mushroom that grows in clusters on dead trees and looks like an oyster.

ENTOLOMA spp.

PAXILLUS INVOLUTUS

CORTINARIUS - Many species of this family have a veil covering the immature gills; this veil is usually cobwebby - a cortina-
- *C. armillatus*
- *C. alboviolaceus*
- *C. semisanguineus*
- *Cortinarius spp.*

CANTHARELLUS - The chanterelle family includes some of our best-known edible wild mushrooms -
- *C. cibarius* (edible)
- *C. tubaeformis* (edible)
- *C. lutescens*

CLAVARIA -Clavaria mushrooms resemble pieces of underwater corals; they come in different colours, most of them are edible -
- *C. cineria* (edible)
- *C. fusiformis*

BOLETUS family - We found only one member of this family. These mushrooms have a thick, sponge-like tube layer instead of gills. There are over 200 species of this family in North America; many of them are edible.

SUILLIS sp.

POLYPORUS spp.

GEOGLOSSUM and relatives (earth tongues) - The spores are in little sacs all over the top of the mushrooms -
- *Trichoglossum hirsutum* (they look like small velvety clubs)
- *Leotia lubrica*
- *Sprageola irregularis*

SCLEROTERMA CITRINUM - (a puffball)

and a slime mold!

Roger Rittmaster and
Regina Maass

PALEONTOLOGICAL SITES

Date: Saturday, 11 October, 1986 Participants: 10
Place: Rainy Cove (nr. Pembroke, Hants County) and shoreline at Newport Landing
Weather: A beautiful sunny fall day with a cool breeze, but warm where out of the wind
Leader: Geoffrey Chinn (3rd year geology student at St.Mary's University)

The field trip provided a rare opportunity to visit two of the many interesting geological sites in Nova Scotia, with a knowledgeable and enthusiastic guide. Not only were the two sites visited fascinating but an added bonus was enjoyment of the autumn colour on the drive from Halifax; which took us through Newport, down the east side of the Avon River to the Minas Basin and along the south side of Minas Basin to Rainy Cove.

With much help from our guide, at Rainy Cove we discovered rocks with imprinted wave action, a fossilised plant stem, possibly ± 350 million years old, indentations in rocks which were probably the footprints of a small mammal, and many worm burrows.

We saw faults in rock formations resulting from the collision and separation of continents and rocks bent into incredibly tortuous shapes from extreme pressure over a long period of time.

Strata formations indicated intense mountain building. There was also indication of a sedimentation process going on at the same time on top of the rock strata, which affected plant life.

Along the shore at Newport Landing the rocks showed environmental variations. We found awesome the faulted beds of the Windsor Group of rocks which include limestone, several varieties of gypsum, sandstone and siltstone. Gypsum varieties of special attraction were Chicken-wire Gypsum, Satin Spar Gypsum and rosettes in gypsum. The presence of limestone and a fossilised tree stump without annual growth rings indicated a tropical period of time millions of years ago. In the same area we also found the imprints of fossilised sea shells.

The geological history and types of rock strata present, have determined to a large extent the physiography of Nova Scotia. Sites of geological interest are marked and described on the Geological Highways Map of Nova Scotia (on sale at the N.S. Museum) - there are 92 of these sites. It is suggested that members of HFN would enjoy more field trips of a geological nature.

Milton Gregg.

reports

BELUGA - THE WHITE WHALE
(Part II)

(Abstracted from the May 1986 issue of the newsletter of the Catherine Traill Naturalists' Club)

The Threatened Belugas of the Gulf.

Once numbered in their thousands, the graceful white whales that live in the Gulf of St, Lawrence, are now about 350 only. They have been designated an endangered species and Pierre Béland, Chief of the Federal Department of Fisheries and Oceans Research in Rimouski, believes the population is still dwindling. "If nothing changes, the belugas will be gone within 15 years, maybe in ten", says Béland. This is corroborated by Daniel Martineau, veterinarian at University of Montreal's vet medicine at Ste. Hyacinthe, who has performed autopsies on 21 beluga carcases that have turned up in the last two years. Another 25 carcases were too badly decomposed for autopsy. Béland and Martineau are not certain what is killing the whales but they have their suspicions. Béland, whose speciality is animal population dynamics, believes the future of Quebec's only indigenous whale population (they've been in the river for at least 10,000 years according to fossils), is very dim. "If the population is between 300-500 then you can calculate that, perhaps 30 young are born each year (sexually-mature female beluga give birth to one calf roughly every two years). We are finding about 15 dead whales every year and we estimate another 15 are not found. So at the very best you can say the population is stable. And that's the optimistic scenario", says Béland.

Greenpeace's director, Bruce McKay, is more pessimistic and says the numbers are 250-500 with no proof of stability. Leone Pippard, an independent scientist interested in critical habitat field studies says the Gulf belugas number 350, maybe 250. Dr. Dave Sergeant, a research scientist with

Fisheries and Oceans in Montreal claims the belugas have been static for 12 years at about 500. Sergeant's census figures are, however, somewhat suspect as he bases them on surveys done in 1982 (505 from 360-715); in 1984 (431 from 187-773), and 1985 (495 ± 245) and the spread is too extreme to be credible. So today we are more likely to have a pessimistic population of 300.

Autopsies on the beluga carcases have revealed extraordinary high levels of PCB's, DDT and the insecticide Mirex, in their blubber. The polychlorinated biphenyls (PCB) have been as high as 575 parts per million (ppm). The Department of Fisheries and Oceans consider fish with 2ppm too contaminated for export or for sale. The presence of Mirex in the belugas is even more disturbing, given that the only source in the St. Lawrence watershed is in the sediments of southern Lake Ontario.

Martineau has also discovered that the male beluga have higher concentration of contaminants than the females because the pollutants concentrate in the breast milk and are passed on to the young who are breastfed for up to two years. So the younger generation are endowed with a very concentrated initial whallop and continue to accumulate it throughout their necessarily shortened lives. Martineau reports one female whose breast milk contained an astounding 1725ppm of PCB's". "We've been cautious about making a link between the presence of PCB's and the health of the belugas because we can't say that the diseases we have noted are caused by the contaminants," said Martineau, "but when you have figures like 1500ppm we have to abandon our reserve and say we think the contaminants are definitely having an effect."

Martineau contends that research on PCB's by other scientists demonstrates that it affects the belugas' immunological system (somewhat akin to AIDS in humans) and that the high level of PCB's make the whales vulnerable to a wide range of infections. The autopsies have shown one whale with bladder cancer, two with stomach ulcers, one with pneumonia, another with heart disease. The case of the bladder cancer prompted some researchers to speculate that the pollutants that provoked it may be the same pollutants which have been linked to the high incidence of bladder cancer among Alcan's aluminum smelter workers at Jonquiere on the Saguenay River. The McGill scientists who studied the bladder cancer published findings a year and and a half ago which said the cancers may be linked to pollutant exposure from the smelter. Louis Martel in another recent study in Chicoutimi showed some of these pollutants have made their way into the St. Lawrence via the Saguenay. It is at the mouth of the Saguenay that most of the Gulf belugas live. Alcan spokesman, Marcel Barthe, won't comment on the Martel study, but asserts the company is now attempting to reduce pollutants in the smelter and are building newer facilities.

Despite speculation of a link to Alcan pollutants identifying the source or sources may be an impossible task. The belugas pick up contaminants from fish and other river creatures they feed on. Some of these, like eels, which have been found contaminated with PCB's and Mirex, travel the length of the St. Lawrence and may get their dosage at various points. Béland points out that belugas, like man, are at the top of the food chain so get all the contaminants from the small fish which have, in turn, absorbed and concentrated. Béland said other Dept. Fisheries and Oceans researchers have examined other whale species that summer in the St. Lawrence and found they are less contaminated. "It seems there is a relationship between the amount of time spent in the St.Lawrence and the degree of contamination."

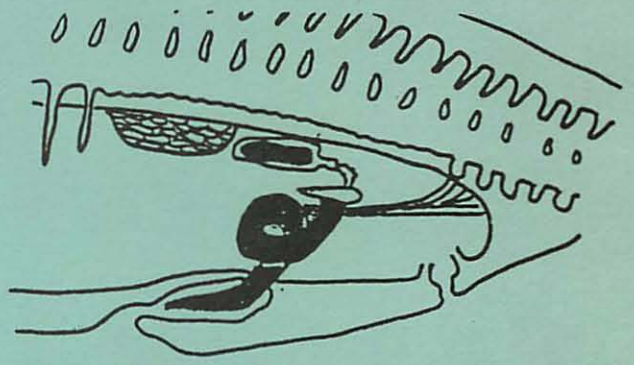
Greenpeace's researcher, Bruce McKay, who has spent several months preparing a beluga report, says Béland's and Martineau's discoveries may be "just the tip of the iceberg". "If the belugas are that contaminated, what are the implications for the fish, marine fauna, and the human population in that area? We are seeing the effect of years of pollution. What is happening to the beluga is an indication of serious environmental problems. We now appreciate that dumping sewage and industrial effluent in the river does not get rid of it. That's not the solution. To save our belugas we must, among other things, stop dumping sewage and industrial wastes into the St.Lawrence."

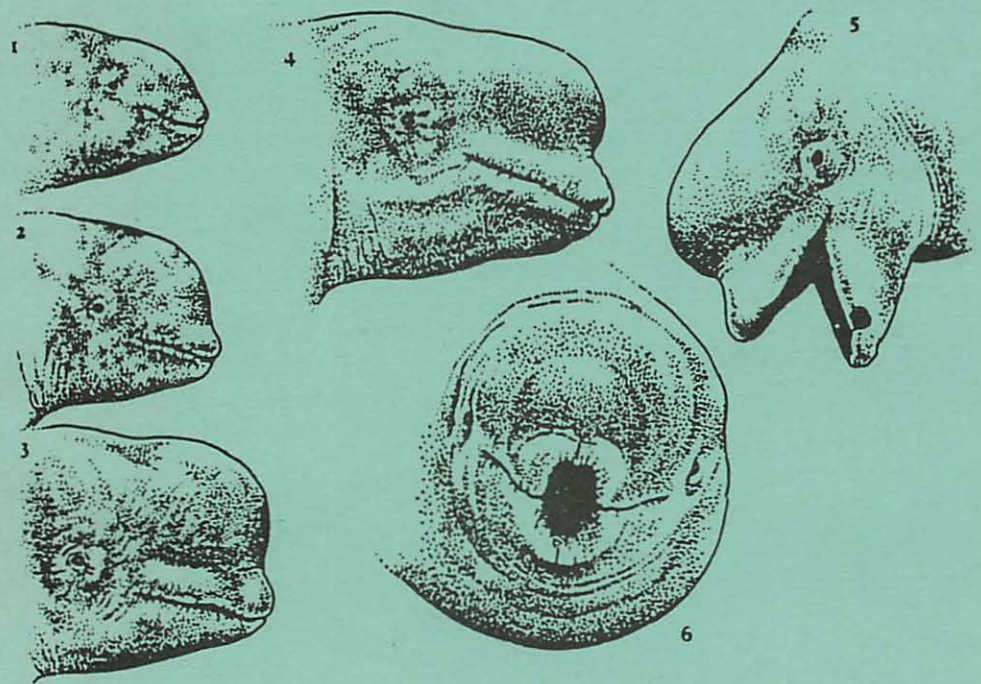
Equally concerned about the future of belugas are the non-profit and private companies that promote whale-watching in the St.Lawrence. A government survey shows whale-watching has become a major industry for communities like Tadoussac near the mouth of the Saguenay. More than 26,000 people visited the area for whale-watching and spent $2 million in the region on excursion fees, food and lodging. Even Dr. Sergeant says "We are fortunate that the whale-watching tourism, and most other forms of boating activity, have developed in the region that contains the adult whales and rather few of the calves, for it seems probable that the most vulnerable animals to disturbance would be the females, calving in summer. More fortunately, a program is underway to purchase the islands in the St.Lawrence that lie in this 'sensitive' calving area; indeed, several have already been purchased (they are important not only to the white whales, but for the nesting of seabirds)".

(Whale sketches by Jean Bennett).

The Genitals

Belugas, as in other whales have the genitals internal with only a genital slit being visible. In males, the penis lies coiled on the floor of the abdominal cavity, held there by a retractor muscle. The penis is very mobile and is often used as a sensory organ, particularly during courtship. The penis and testes are shown in black.





Smiling beluga—development of facial features and expressions. Adult beluga have a very pronounced forehead melon, but this is slow to develop: in newborn beluga (1) it is almost absent; in yearlings (2) the melon is quite large but the beak undeveloped; maturity (3) is reached at 5–8 years. The beluga's mouth and neck are highly flexible, and they communicate with each other a great deal by sound and facial expression. In repose (4) the beluga seems to our eyes to be smiling. Beluga are versatile feeders and the pursed mouth (6) is believed to be used in bottom feeding. Besides clicks and bell-like tone, beluga produce loud reports by clapping their jaws together (5).