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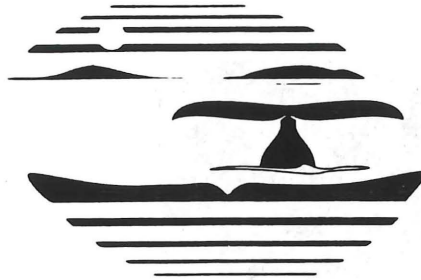
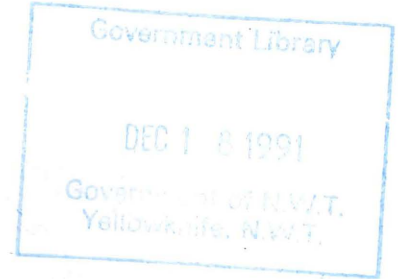


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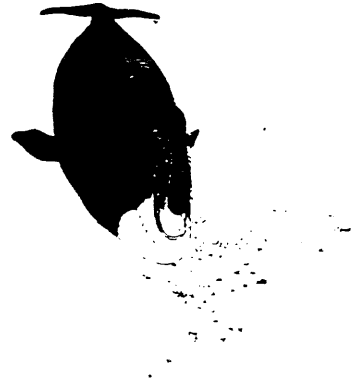
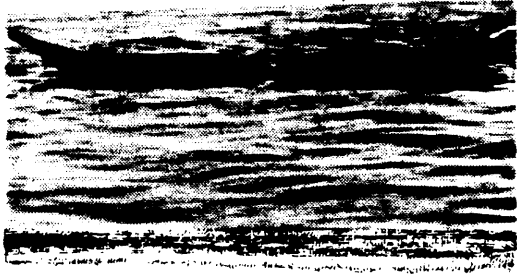
**AN INTERNATIONAL CONSERVATION STRATEGY FOR THE ENDANGERED  
BOWHEAD WHALE OF BAFFIN BAY**

by

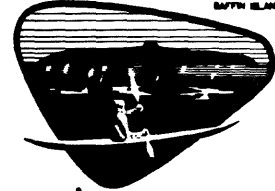
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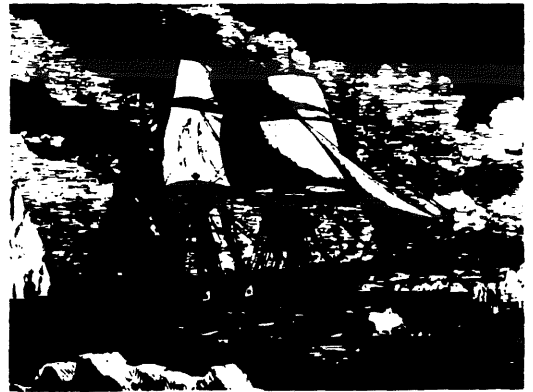
30 November, 1991



ISABELLA BAY  
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## BALAENA MYSTICETUS

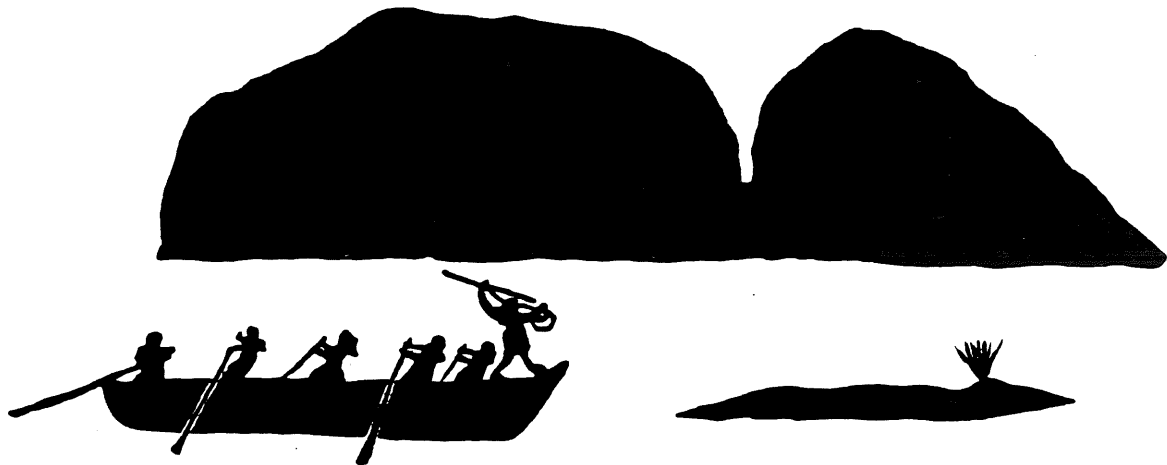
The bowhead whale, or Greenland right whale, is the only baleen whale adapted to life in arctic seas. It is a robust, slow-moving whale, up to 18 metres in length and weighing nearly a hundred tonnes. Thick blubber insulates the whale from its icy environment. The bowhead's most extraordinary feature is its large mouth, hung with long baleen plates, designed to sieve rice-sized organisms called copepods from barren arctic seas.

*This valuable and interesting animal, generally called The Whale by way of eminence, is the object of our most important commerce to the Polar Seas — is productive of more oil than any other of the Cetacea, and, being less active, slower in its motion, and more timid than any other of the kind, of similar or nearly similar magnitude, is more easily captured. William Scoresby, whaling captain, 1820.*

The bowhead has suffered for its unique attributes: its oil and baleen fueled the British and American whaling industry for over two centuries. By the turn of this century, the whalers had brought bowhead populations in the North Atlantic to near extinction. Today, bowheads in the eastern Canadian arctic are an endangered species with fewer than 500 remaining. Despite the fact that they have not been hunted for over 80 years, they have shown no appreciable signs of recovery. It is thought that their slow recovery is due to habitat changes (such as oceanographic fluctuations and food competition) along with predation by killer whales and a low birth rate.

Human activities threaten the bowhead and its habitats in various ways. Rapid population growth and socio-political changes are at the crux of the conservation issues. Although Inuit are not allowed to hunt bowheads in the eastern Canadian arctic, they have a strong desire to resume hunting and there is a growing defiance of government regulations. Radical changes in hunting technology and the long-term prospect of Inuit resettlement of traditional hunting areas will impinge on the bowhead. Increases in shipping activities, offshore oil development, eco-tourism and marine fisheries are imminent. Net entanglement has claimed at least one bowhead in Baffin Bay but there may be more insidious side effects of fisheries such as alteration of the structure and carrying capacity of arctic marine ecosystems.

Obviously, any conservation strategy for the bowhead must be broad in perspective, practical in its specifics, and cost effective. The following is a vision of such a strategy.



Before the arrival of the European whalers, Akvik, the bowhead whale, was the focal point of the Toonit people, an ancient Inuit culture in the Canadian arctic islands. Distinctive cultural artifacts associated with ancient village ruins of whalebone houses (qammaqs) mark the zenith of this whale-hunting culture in several locations in the arctic islands. It is no accident that the largest village sites are found in strategic locations where bowheads had predictably gathered. The “Little Ice Age” (ca. 1650 - 1750) marked the end of this culture : when the arctic islands emerged from this climatic period, the Toonit culture had vanished and a new Inuit culture had emerged.

When European whalers encountered these Inuit, they found a diverse culture that had adopted a variety of marine and terrestrial hunting strategies. Abundant archaeological sites, Inuit oral history and historical reports tell the story of the first contact with the European whalers in Baffin Bay. The natural history of the bowhead whale is intimately intertwined with this legacy. Nowhere is this legacy more evident than at Isabella Bay, Baffin Island.

*Isabella Bay must have always been important to the bowheads. It must have been an important whaling ground judging from the abundance of bones there. Apak Qaqqasiq, elder, Clyde River. 1983.*

*Change came with the whalers. They were the first to start change. Peter Pitseolak, elder, Cape Dorset. 1973.*

## ISABELLA BAY, 1983 - 1988

Until recently, our knowledge of the bowhead in the eastern Canadian arctic was based largely on the accounts of surgeon-naturalists who served in the whaling industry in the 19th century. The bowhead has been considered too rare and sparsely distributed to warrant dedicated field studies. Then, in 1983, acting upon the knowledge of Inuit elders, Isabella Bay was "discovered" by biologists. Studies, initiated by World Wildlife Fund and supported by several government agencies, have shown that Isabella Bay is an important historical and present-day concentration area for the remnant population of bowheads. The Isabella Bay studies have produced exciting results of international significance.

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### Isabella Bay, Baffin Island: An Important Historical and Present-day Concentration Area for the Endangered Bowhead Whale (*Balaena mysticetus*) of the Eastern Canadian Arctic

K.J. FINLEY<sup>1</sup>

(Received 21 July 1989; accepted in revised form 2 November 1989)

**ABSTRACT.** A late summer concentration of bowheads (*Balaena mysticetus*) at Isabella Bay, Baffin Island, was studied during 1983-88. The general results of the field study are presented and integrated with historical research and artifactual evidence of British whaling.

Bowheads were observed from shore on virtually every day of adequate visibility in late summer, early fall of 1984-88, but in 1983 only two whales appeared. Peak numbers occurred in September, when as many as 68 whales were counted on one day. The whales congregated in specific areas corresponding to significant underwater topographic features. Most feeding took place in one of two deep (> 200 m) troughs and most social activity occurred on a shallow bank (< 30 m). Earliest arrivals were large subadults that engaged in social-sexual activities on the bank; adults arrived later and fed in deep troughs. Migrants from the north arrived in October.

The mean length of 83 whales, measured photogrammetrically, was 14.4 m; 89% were > 13 m long, which is about the minimum size of sexual maturity. The smallest whales, presumed to be large subadults, had less white on the tail stock. Females with calves were rarely seen. One distinctively marked individual was observed in 4 of 6 years. Another was observed in 1984 as a late summer "resident" and in 1986 as an autumn "migrant." Seven of 47 whales identified individually from aerial photographs in 1987 were identified among 107 photo-identified individuals in 1986.

Interactions of killer whales with bowheads were observed twice. About one-third of the bowheads bear killer whale scars.

Whaling literature indicates that bowheads on the east coast of Baffin Island, called rocknosers, were segregated in late summer from those in the High Arctic archipelago. This population was exploited mostly after 1859 with the advent of steam power, in an operation called rocknosing. Isabella Bay was a significant port of operation during this last phase of the industry; the whalers were strategically positioned to hunt large whales in offshore troughs late in the season. Other locations with similar characteristics on the east coast of Baffin are identified from Inuit lore and historical literature.

**Key words:** bowhead whale, *Balaena mysticetus*, Isabella Bay, Baffin Island, numbers, distribution, habitat, segregation, site fidelity, whaling history, predation

## FOUNDATIONS OF A CONSERVATION STRATEGY

The World Conservation Strategy, published in 1980, has established a framework for planning the sustainable use of living resources. Canada's Arctic Marine Conservation Strategy (AMCS) arose from this global plan. Its purpose is :

**To ensure the future health and well-being of Arctic marine ecosystems thereby enabling Canada to fulfill its national and international responsibilities in the Arctic and to provide for the sustained utilization of Arctic marine resources, in particular, by Arctic peoples.**

The AMCS is built upon the following foundations:

1. **Research / Knowledge** : Development of a knowledge base through research is required to support the needs of management as they relate to Arctic marine conservation and renewable resource development.

2. **Habitat Protection** : Identification and delineation of essential habitats is fundamental to any conservation strategy. Designation of important marine habitats should be based on an **ecosystems approach** and should integrate management of renewable and non-renewable resource activities.

3. **Communication** : Development and implementation of a communications strategy is necessary to promote understanding of and support for the biophysical, social and cultural features of the Arctic marine ecosystem. The AMCS should be built through a process of consensus and with a special sensitivity to traditional values and local customs.

4. **International Cooperation** : Most marine mammal populations in the Canadian arctic are migratory and cross international boundaries. Therefore we share responsibility for their protection with other countries such as Greenland and Alaska. There is a need to broaden the geographical scope of research and long-term management plans should be formulated in the context of broader regional and species management plans.

The Isabella Bay studies are a *model action plan* for implementation of the AMCS. The present initiative is a logical extension of the groundwork that has already been laid.

*We have heard that the government has a plan for protecting important marine areas in the north but we have not seen it practiced. Perhaps it is written in a book in Ottawa. Levi Illingayuk, Clyde River. 1990.*

## DEFINITION OF CRITICAL HABITAT

Isabella Bay offers a unique combination of habitats that serve the bowhead in various ways, including socializing, shelter from predation and energetic advantages. However, special feeding opportunities are the main reason for the attraction of the bowheads to Isabella Bay. Identification and protection of essential feeding habitat, even if it is presently under-utilized, is important to the well-being of the present population and will become more important as the population expands and occupies abandoned range. Knowledge of the mechanisms responsible for productive bowhead feeding habitat is important in evaluating the potential impact of various industrial activities in the eastern arctic, including tourism. Knowledge of the trophic dynamics of the arctic marine ecosystem is relevant to the question of increased competition, through trophic interactions, with rapidly increasing harp seal populations. This, in turn, is directly relevant to the future marine resource harvesting strategies of the Inuit who wish to resume hunting the bowhead as their ancestors did.

### The Copepod Link

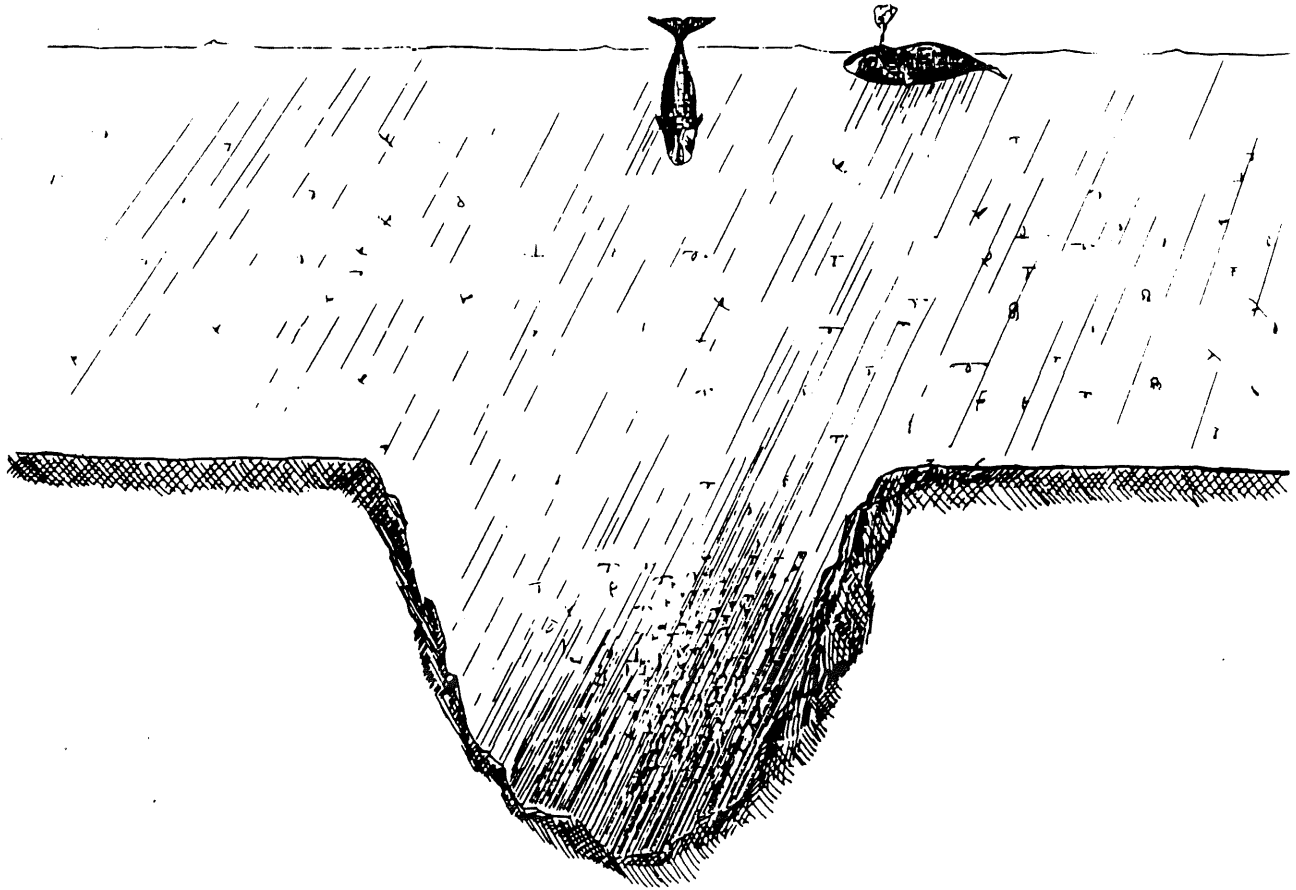
The attraction of bowheads to Isabella Bay relates to the abundance of copepods, the principal food of bowheads and a critical link in the arctic marine food web. The available evidence indicates that productive feeding habitat is created by a remarkable phenomenon that has been at work for millenia. However, the mechanisms behind the phenomenon remain unclear.

Feeding patterns of the bowheads, documented over several years, have revealed many surprising oceanographic and biological features at Isabella Bay. Although it was beyond the scope and capabilities of the Isabella bowhead project to conduct a comprehensive oceanographic study, limited echosounding surveys showed that feeding patterns are associated with deep glacial troughs. (These troughs were not marked on marine charts). Limited zooplankton sampling found high concentrations of adult copepods in deep waters of the troughs. The onset of the autumn feeding season appears to revolve around the life dynamics of two dominant copepod species, particularly the timing of their autumn migrations to deep overwintering sites, and the interaction of prevailing winds and currents with coastal troughs. Thus, the available evidence provides tantalizing glimpses of the important natural phenomenon but it remains hypothetical and cannot be used to clearly define important feeding habitats of the bowhead in other areas.

The historical foundation, linking whale feeding areas to British whaling grounds and productive Inuit hunting areas, has been established. To complete the ecological picture, it is now necessary to demonstrate the significant linkages between feeding behaviour of bowheads, oceanographic

features, and the abundance of copepods. Specifically, the research is aimed at defining and delineating critical bowhead feeding habitat but, in general, the study will aim to increase our understanding of the basic biophysical processes which contribute to productive arctic marine ecosystems.

*The new "ecosystem approach" means that resource people shift their focus from parts to wholes, from the "interest" to the "capital", from plants and animals to the three-dimensional landscape ecosystems and waterscape ecosystems that produce them. J.S. Rowe, ecologist, 1991.*





## TRADITIONAL ECOLOGICAL KNOWLEDGE

*The traditional knowledge of the hunting people has not yet been accepted parallel to modern biological research as expertise on renewable resources. The general attitude of policy makers, scientists and administrators all over the world is that this traditional knowledge is not valid information. Hans Pavia Rosing, Greenlandic politician, 1990.*

The bowhead story at Isabella Bay would be incomplete without the considerable wisdom of local Inuit elders. In fact, the studies at Isabella Bay would not have continued after the first year (when the whales failed to appear) if it had not been for the elders' knowledge and advice.

*Animals' traditions don't change; once one animal goes over a certain migration route or to certain places, it will return, and others will follow and learn. That is why the whales come back to Isabella Bay year after year. Allaluk, the Big Stranger, may be the leader of the whale nation. In Inuit stories, the appearance of such unusual creatures is a good omen of better hunting days to come. Ashevak Palituq, elder, Clyde River. 1988.*

Allaluk, the Big Stranger, is a legendary creature arising from Inuit mythology and the Isabella Bay studies. A very large and unusual whale with a pure white tail, Allaluk has appeared every year, very nearly on the same date and location, and engages in conspicuous "rocknosing" behaviours. This magnificent whale has become a powerful symbol of the melding of traditional ecological knowledge and science.

*The remarkable feature of the work (at Isabella Bay) has been the very high degree of community interest and involvement. A wealth of information has been brought out, shared and absorbed. That exchange has been so thorough that it was hard to tell where any boundary existed between formal scientific knowledge and local or traditional knowledge - they were so well blended and adopted into the awareness of both the community and the scientist. Heather Myers, Yellowknife. 1990.*

## CROSS-CULTURAL COMMUNICATION

Due to inadequate funding and over-specialized training, wildlife management in the arctic operates in an unfortunate management-by-crises manner : biological studies are usually initiated only when there is overwhelming evidence that wildlife populations are in trouble. Typically, endangered species management programs emphasize biological assessments and technical solutions when, in many cases, socioeconomic factors and political forces constitute the basis of the problem. In the view of many Inuit, biologists are harbingers of bad news and more controls over their hunting lifestyle. This results in growing resentment of resource managers, noncompliance with rules and political confrontations.

NUNATSIAQ NEWS, August 24, 1990 :

### ***Harrassed hunters fight back***

by Janet Smellie

**IQALUIT**—Two hundred local Iqaluit hunters say they've ignored the Nunavut Wildlife Advisory Board's beluga quota of five beluga's for 1990 and say

they will continue to ignore the quota in the future.

A spokesperson for Qalugiaq, a group set up in May to represent hunters in the Iqaluit area, claim hunters spent the last days of the summer hunting season

being harrassed by Department of Fisheries and Oceans staff.

Jacopoosie Peter says the TFN's Nunavut Wildlife Advisory Board which decided last January to impose a 15-beluga quota for Pangnirtung, Iqaluit

The Isabella Bay studies are not so caught up in this vicious circle and therefore can serve as a model of how conservation might be implemented in a cooperative atmosphere. Local participation in the Isabella Bay studies has helped to bridge the cultural gap between local knowledge and applied science, establishing a mutually-credible basis for the implementation of a conservation strategy. There are no immediate villains in the Isabella Bay story; the scapegoats, the whalers, are illustrious and safely stored in history. The way is now paved to make a clean success story - one that is shared with the larger Inuit constituency bordering - on both shores of Baffin Bay and beyond.

*The success of any marine mammal conservation strategy depends entirely on the willingness of the hunters to cooperate with resource managers, and ultimately on the political will to implement sound management strategies. Made-Peter Heide-Jorgensen, biologist, Greenland Fisheries Research Institute. 1991.*

## INTERNATIONAL COOPERATION

Recently, a "rocknosser" whale from Isabella Bay was photographed off West Greenland. This remarkable "recapture" occurred entirely by chance - bowheads have never been studied in Greenland and the photographs were taken opportunistically during other studies by Danish biologists. Although not unexpected, the recapture clearly shows that the bowhead population is shared between two countries, like many marine mammal populations in Baffin Bay. Until very recently there has been very little international communication and cooperation regarding the marine mammal populations of Baffin Bay. The wandering "rocknosser" bridges the communication gap and is an appropriate symbolic key to international cooperation.

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### Photographic Reidentification of a Bowhead Whale in Davis Strait

M.P. HEIDE-JØRGENSEN<sup>1</sup> and K.J. FINLEY<sup>2</sup>

*(Received 30 July 1990; accepted in revised form 3 January 1991)*

ABSTRACT. An adult bowhead whale photographed at Isabella Bay, Baffin Island, on 28 September 1986 was reidentified from a photograph taken off West Greenland on 10 April 1990. The "recapture" distance was about 460 km across Davis Strait. The recapture is consistent with historical knowledge of the seasonal distribution of bowhead whales and is supportive of the hypothesis that bowheads circulate within the Baffin Bay - Davis Strait area as part of a discrete stock.

Studies on bowhead behaviour and ecology at Isabella Bay have elicited strong interest and support from several American researchers who have expertise on the Alaskan bowhead whale. The U.S. Minerals Management Service has funded analysis of Isabella bowhead behaviour with the view that the population could serve as an undisturbed "control" for making behavioural comparisons with Alaskan bowheads that are exposed to industrial activities. Dr. Chris Clark of Cornell University has analyzed the sounds of Isabella bowheads and has compared them to Alaskan whales. Dr. Don Schell of the Institute of Marine Ecology, Fairbanks has analyzed radio-isotopes contained in baleen from a bowhead that was recently found dead in Baffin Bay and has found some interesting features regarding age and feeding ecology. Mr. K. J. Finley was invited by the North Slope Borough to participate in the Fifth Conference on the Biology of the Bowhead Whale held in Alaska in 1990; funding support for presentation of preliminary data on feeding ecology of bowheads was provided by the U.S. Minerals Management Service. Such international cooperation and support has added much to our knowledge base and has much more to add in the future.

## A PROTECTED AREAS VISION

As a result of the Isabella Bay studies, the area is now being proposed as a protected area of international importance. A sanctuary proposal, prepared by the community of Clyde River in association with World Wildlife Fund, has been identified by the Canadian Environmental Advisory Council as an excellent example of a working partnership in conservation.

### Clyde River and World Wildlife Fund: Partners in Protected Areas

#### A Bowhead Whale Sanctuary

The Community of Clyde River, working with the World Wildlife Fund (Canada), has developed a conservation plan to protect bowhead whales at Isabella Bay on Baffin Island, Northwest Territories. Commercial harvesting a century ago reduced the whale population from 11,000 to approximately 300, and there is no indication that the population is recovering. The conservation plan aims to protect the bowhead whale and its habitat from disturbance and pollution, assist in the recovery of the bowhead whale population, and protect an important cultural heritage of the Inuit of Baffin Island.

The conservation plan calls for the following:

- the establishment of a whale sanctuary under the federal *Fisheries Act* to protect the critical habitat of the whale;
- the establishment of a biosphere reserve to draw international attention to the plight of the bowhead whale and to promote sensitive uses around the sanctuary; and
- the use of territorial legislation to protect important archaeological sites.

The community of Clyde River prepared the conservation plan to secure government leadership in the protection of the bowhead whale. It also hopes to draw public attention to the urgent conservation needs of the bowhead whale through the sharing of local knowledge and concerns.

To protect the whales, hunting is no longer allowed. Government leadership and local cooperation, however, are required to address other potential threats to the area including pollution, local traffic, resource development and armed forces activities. The plan seeks to address these issues through the whale sanctuary and biosphere reserve.

This conservation plan is an excellent example of a partnership between a local community and a conservation group for the purpose of protecting areas of national and local conservation significance. It also affirms the need for governments to play leadership roles in protecting endangered species and their critical habitats, and in supporting the conservation objectives of partnerships.

### SANCTUARY PROPOSAL FOUNDERS

The sanctuary proposal has foundered because of political intervention by outside Inuit leaders and their concerns over land claims. The major reason for this failure is one of strategic planning : the larger Inuit constituency was not fully informed of the Isabella Bay studies and sanctuary proposal.

## **AN ENDURING LEGACY**

One of the guiding convictions behind this initiative is that the highest goal that we can aim for - one that is relevant to the generation time of bowhead whales - is a conservation legacy through the cross-cultural exchange of knowledge and ideas. The proposed whale sanctuary at Isabella Bay is an artificial construct that is largely symbolic in value ; its designation on a map may prove to be a hollow victory in the face of socio-political development in the north. To be effective, a sanctuary must be firmly rooted in a regional conservation ethic. Unfortunately, in the public's view, a sanctuary is a more tangible product than an ethic.

The story of the Isabella Bay bowheads is built upon a theme of shared traditional and scientific knowledge. It contains an important conservation message that begs to be shared with the larger Inuit constituency, including Greenland. The story and the conservation message is best delivered in a film produced by Inuit filmmakers. The basis of this film already exists in footage of Inuit elders and Isabella bowheads taken by David Poisey of Pangnirtung. Mr. Poisey has connections with Greenlandic film makers and is proposing a joint film venture. Integration of traditional ecological knowledge with science will be an important theme of the film; the highlight of the story will be the demonstration of the major links in the arctic marine ecosystem (e.g., the abundance of copepods in critical bowhead feeding areas) and its connections to Inuit history and the development of the whaling industry. In this way, an important natural history and conservation story will be made available to all polar Inuit, as viewed by them and in their own language.

The cost of doing such a film for an Inuktitut audience alone is prohibitive. However, because such a film story has broad international appeal, the initiative can be partly carried by an international audience. Efforts are now underway to organize such an undertaking.

## **A MULTI-DISCIPLINARY APPROACH**

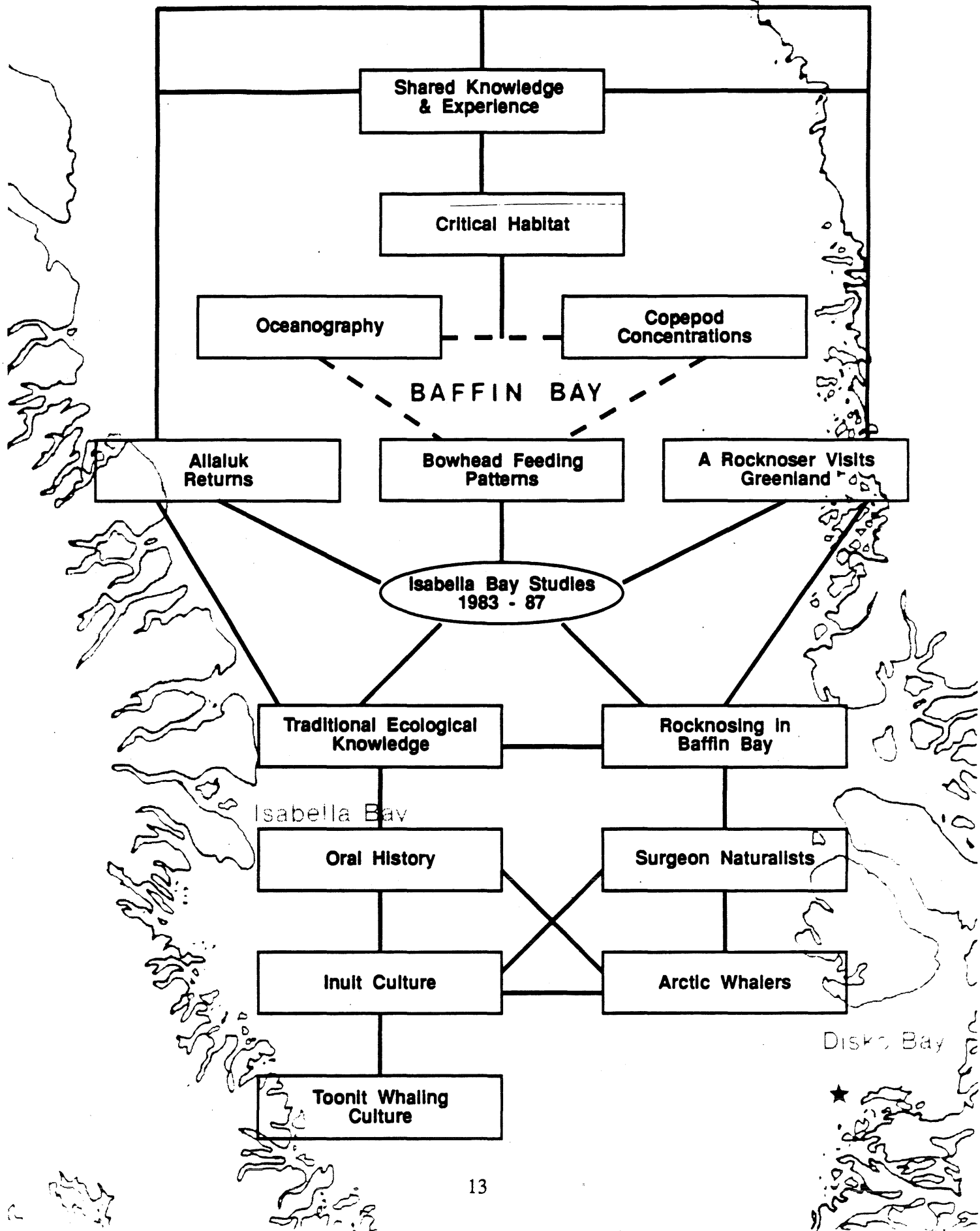
Attempts to complete the research part of this initiative have been futile in the past two years even though it has the strong support of several government and non-government agencies. It is an unfortunate accident of history that the final steps of this conservation initiative appear in a time of recession and cut backs in government spending. Considering the time and energy that has already been invested in the Isabella Bay studies, the final installment represents a small investment in conservation.

Another problem with promoting such a proposal during an economic recession, is its multidisciplinary nature - the onus to support the study does not rest squarely on the shoulders of any particular agency. Furthermore, multi-disciplinary studies are difficult to promote because the various agencies tend to devalue their role relative to the bottom cost line. If the merits of the holistic approach could be tallied from the broader perspective of several agencies, the whole would be seen to be greater than the sum of its parts. Such holistic approaches require considerable orchestration and leadership.

*The timing of this proposal is critical due to the congruence of several factors: the history of the project, the support of the community, the availability of a research vessel, the scientific expertise and the commitment of several agencies. Failure to act now will kill the initiative. This, in my view, would be a shameful loss of opportunity. Monte Hummel, President of World Wildlife Fund (CANADA). 1991.*



# International Cross-Cultural Conservation Strategy



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