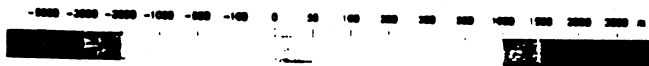
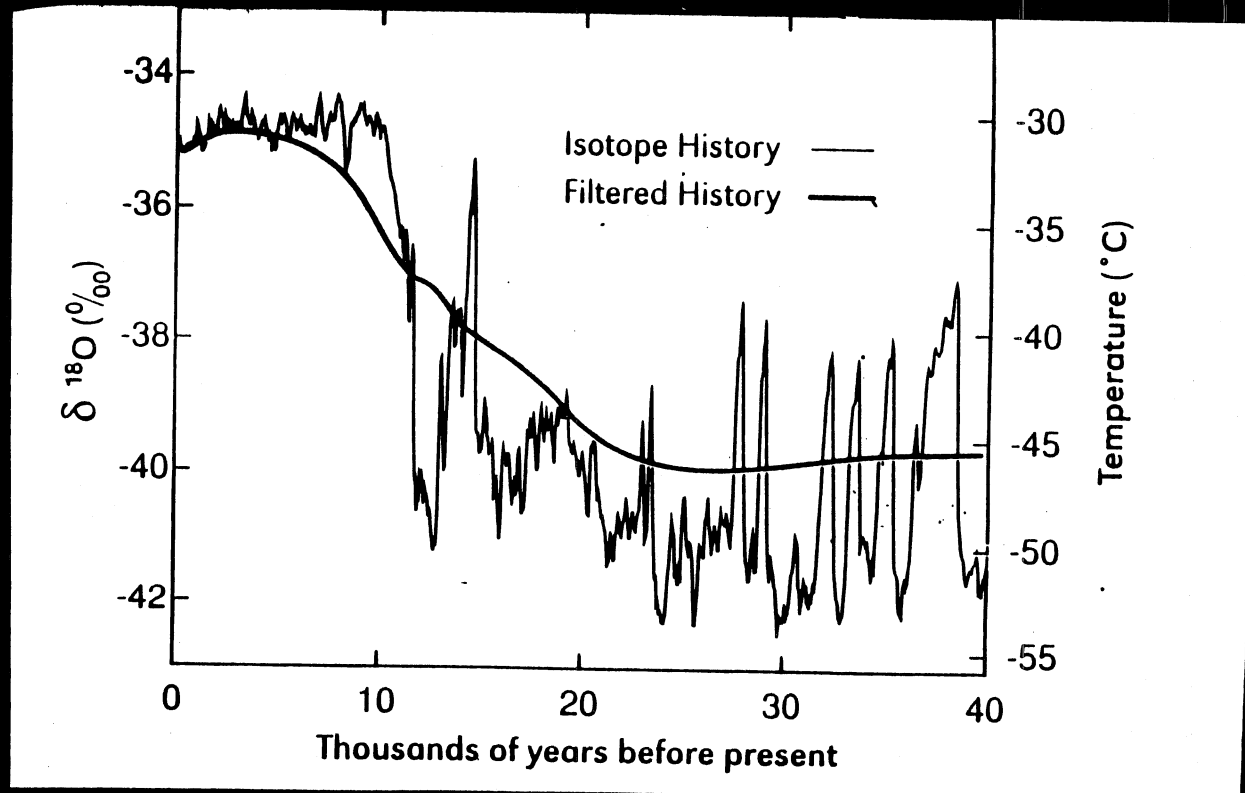


APPENDIX III





GLOBAL CHANGE IN THE ARCTIC THE GREENLAND ICE CORE RECORD

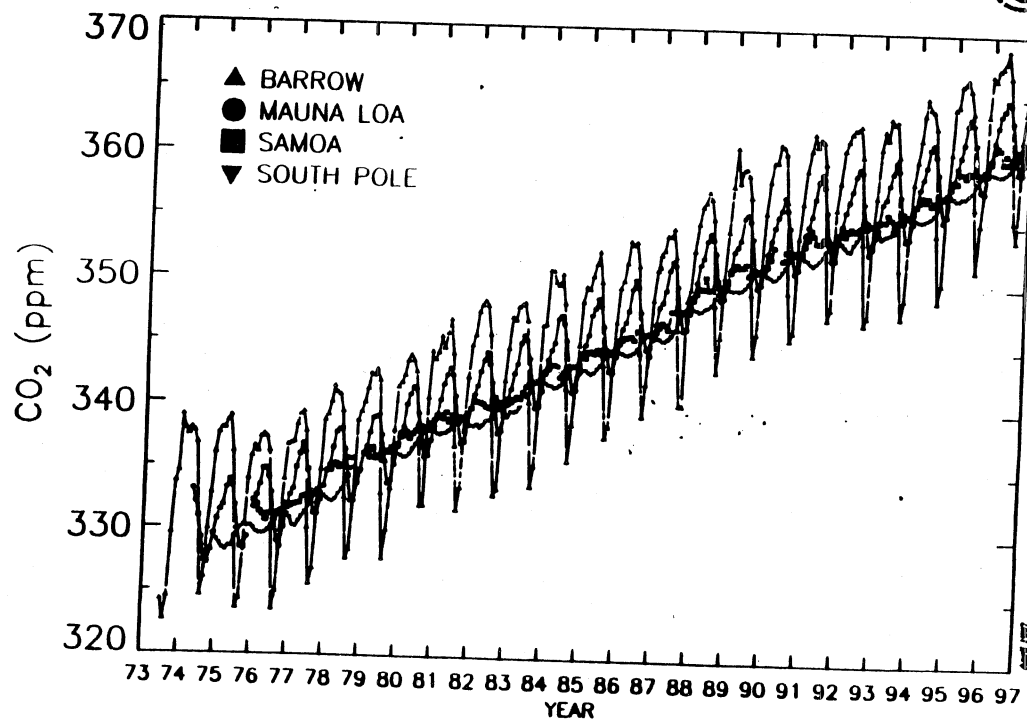




GLOBAL CHANGE IN THE ARCTIC

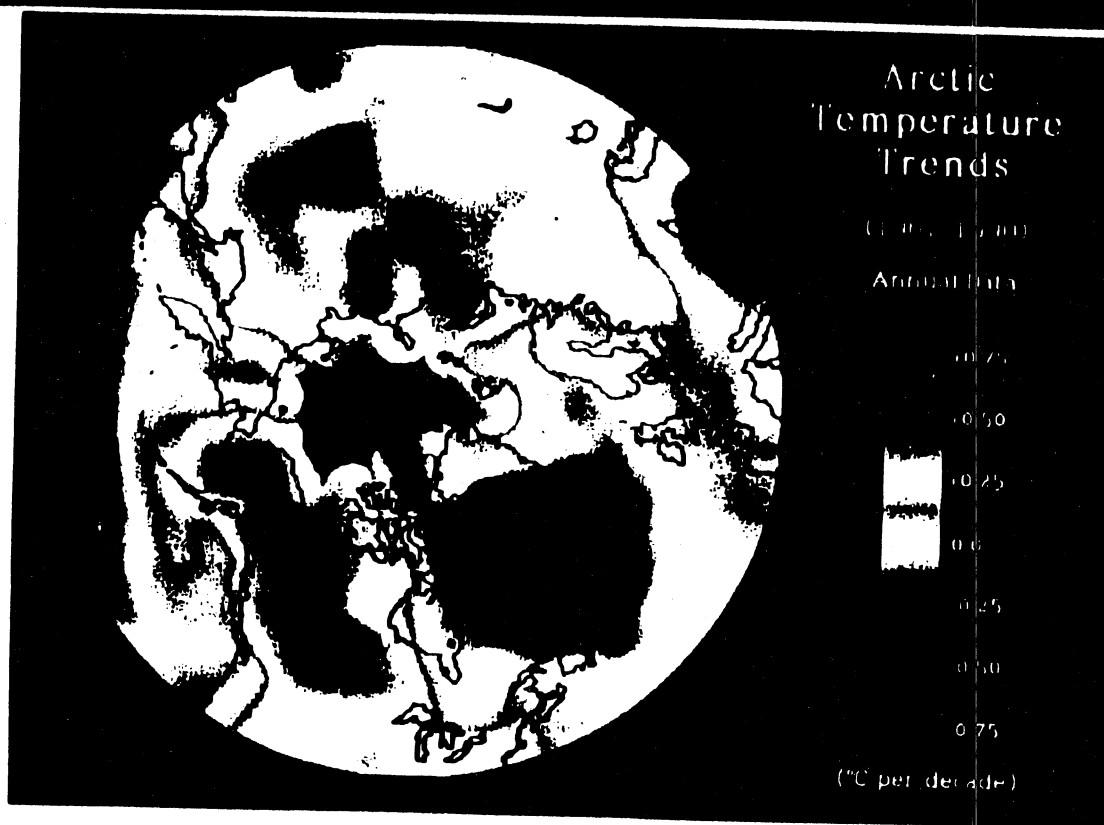


NOAA CMDL Monthly Mean Carbon Dioxide





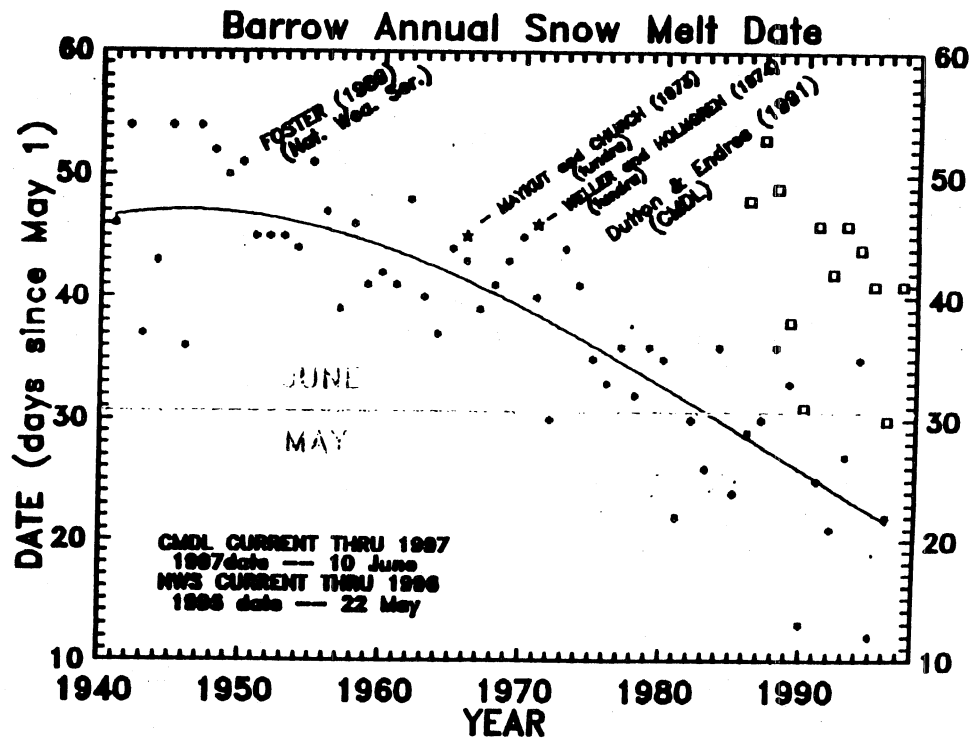
ARCTIC CLIMATE CHANGE DECADAL RATES OF TEMPERATURE CHANGE



BLACK AREA = INSUFFICIENT DATA



GLOBAL CHANGE IN THE ARCTIC

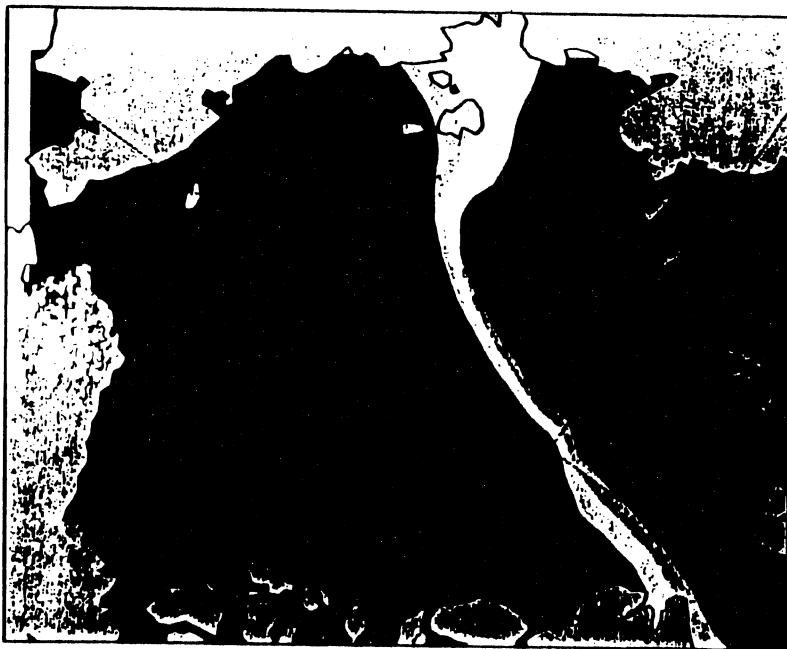




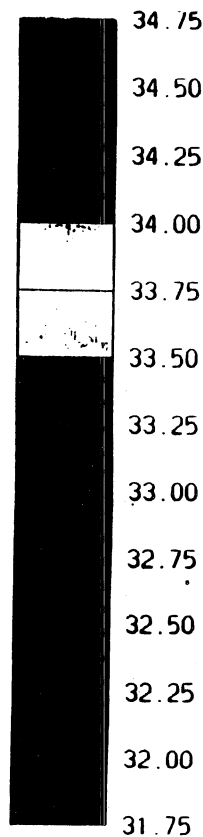
THE ATLANTIC WATER SALINITY ANOMALY IN THE ARCTIC OCEAN

Data from before 1982

Arctic Climatological Salinity at 100 m



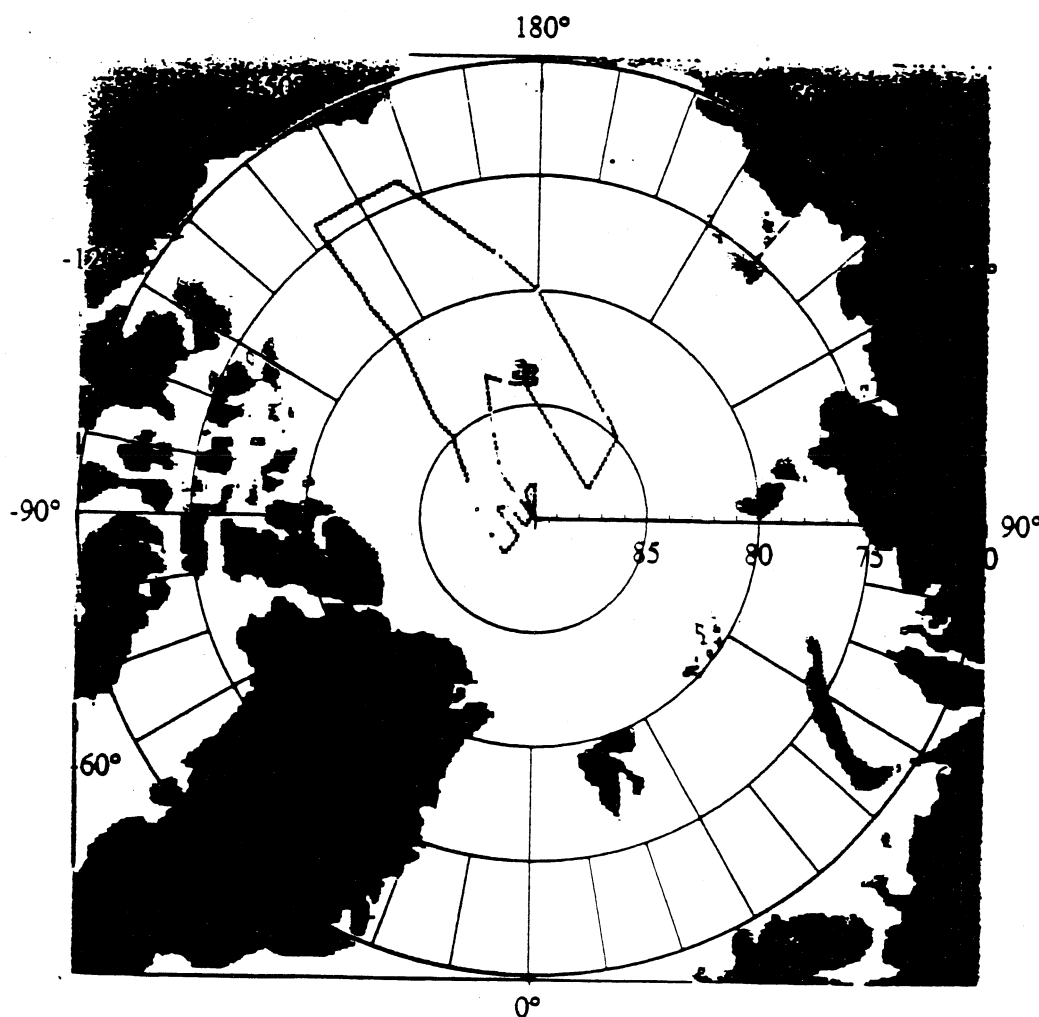
(Levitus, 1982)





ATLANTIC WATER SCICEX DATA

SCICEX'93 Sail CTD Salinity



■ <32.0	■ 32.5-32.75	■ 33.25-33.5	■ 34.0-34.25
■ 32.0-32.25	■ 32.75-33.0	■ 33.5-33.75	■ 34.25-34.5
■ 32.25-32.5	■ 33.0-33.25	■ 33.75-34.0	

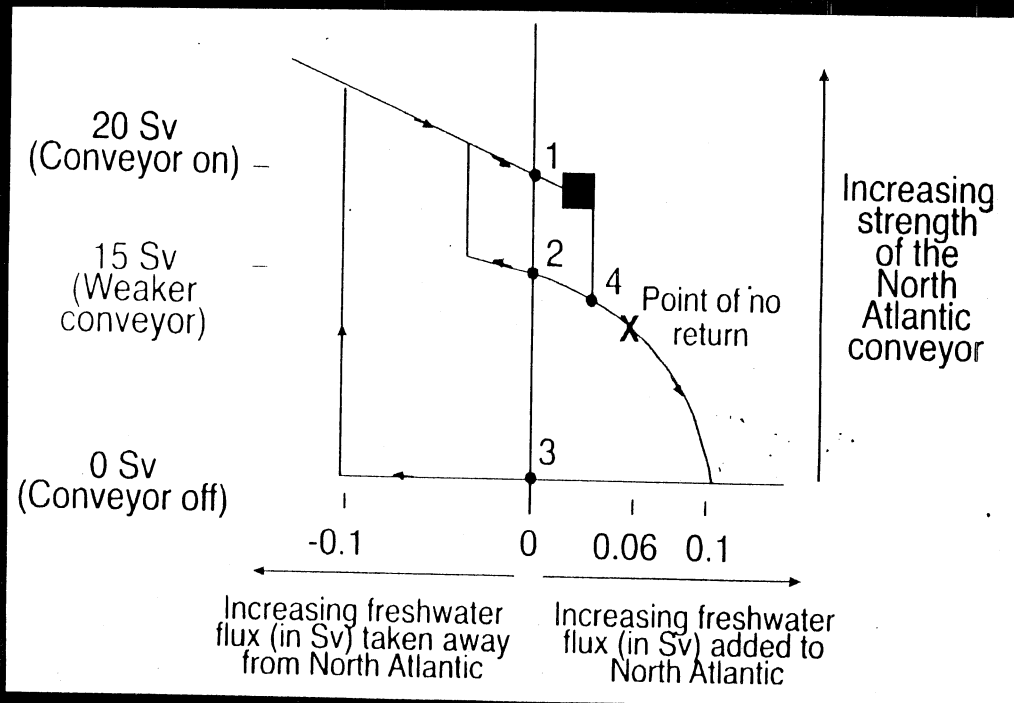


PROBLEMS IN THE BERING SEA ECOSYSTEM

- **56% of the US Fish Harvest
but some species in decline**
- **2-5% of the World Shellfish Market
but Some Species Exhausted**
- **50-90% Decline in some Pinneped Species
(Steller's Sea Lion and Harbor Seals)**
- **Major Declines in Some Sea Birds**



Regime Shifts in the Ocean Conveyor Belt





ARCTIC WILDLIFE

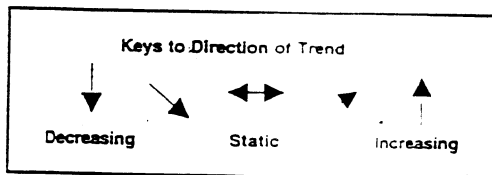
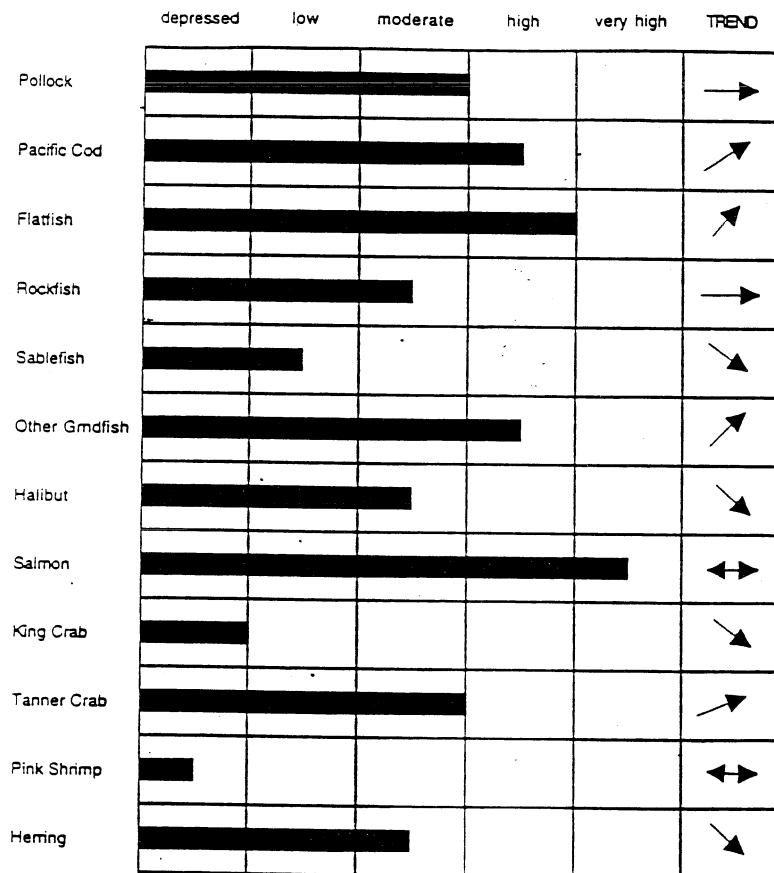
Ursus maritimus





STATUS OF THE BERING SEA FISHERY

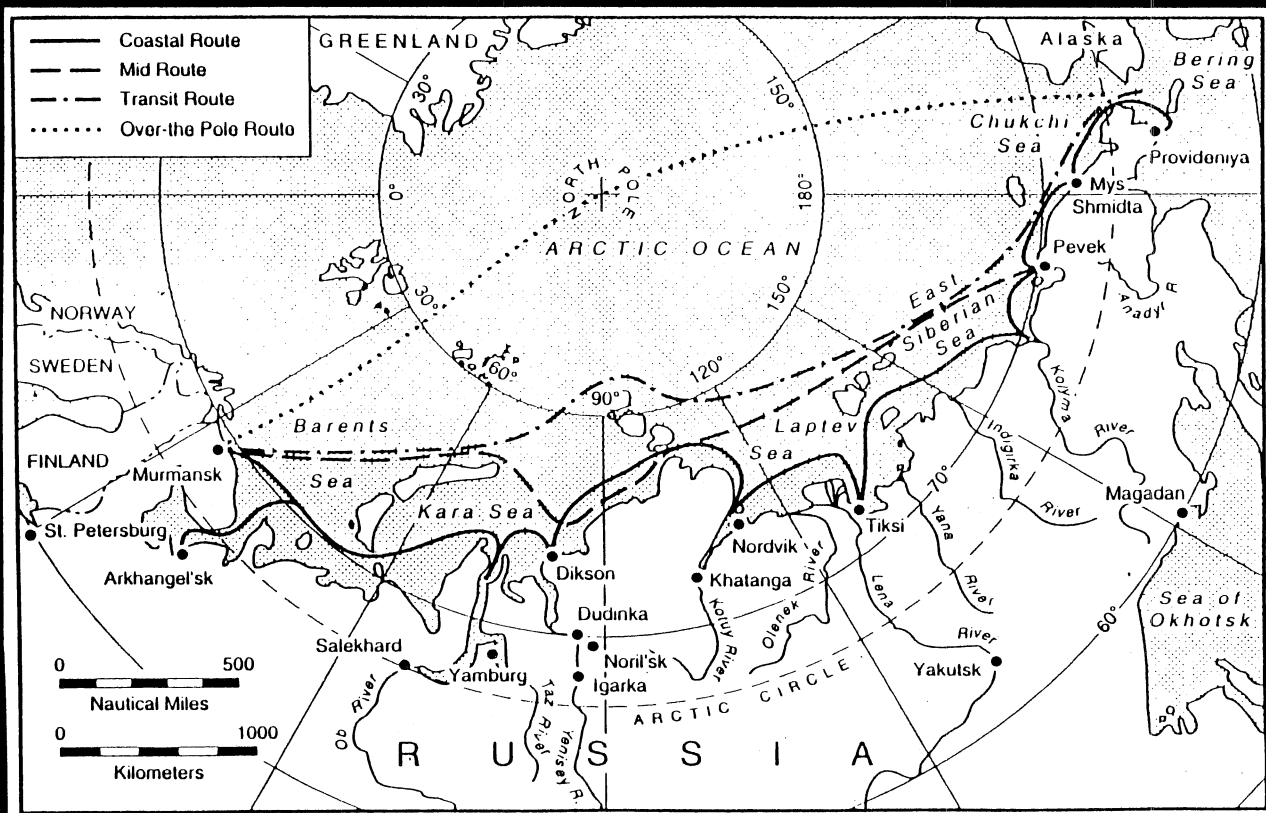
EASTERN BERING SEA AND ALEUTIAN ISLANDS



1995 TOTAL CATCH 2,000,000 mt
POLLOCK CATCH 1,300,000 mt



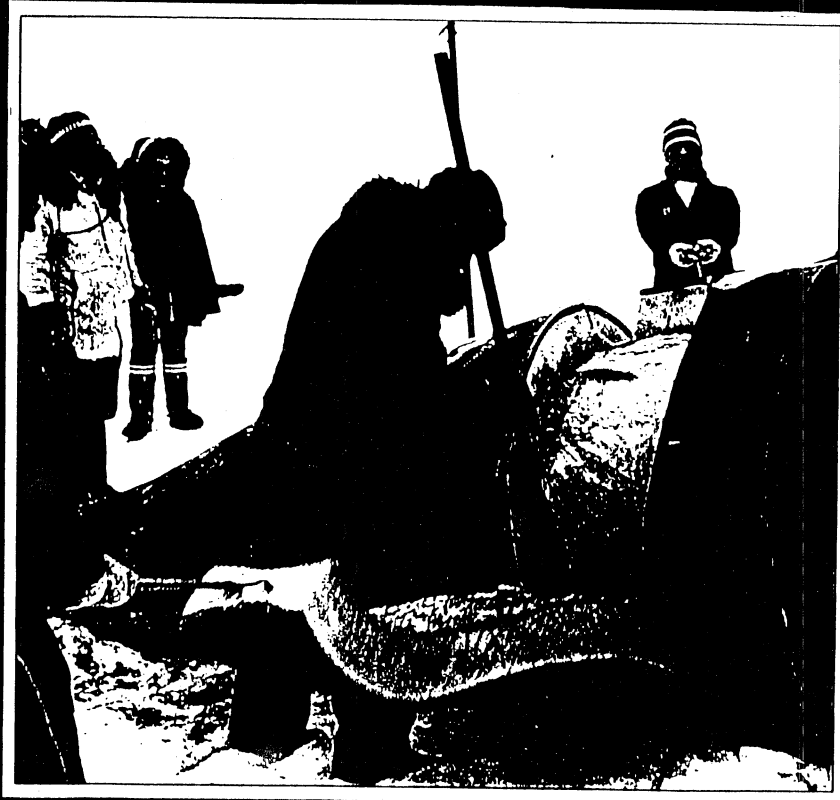
THE NORTHERN SEA ROUTE





NATIVE PEOPLE OF THE ARCTIC

Inuit whalers butcher a Bowhead





THE BILIBINO NUCLEAR REACTOR

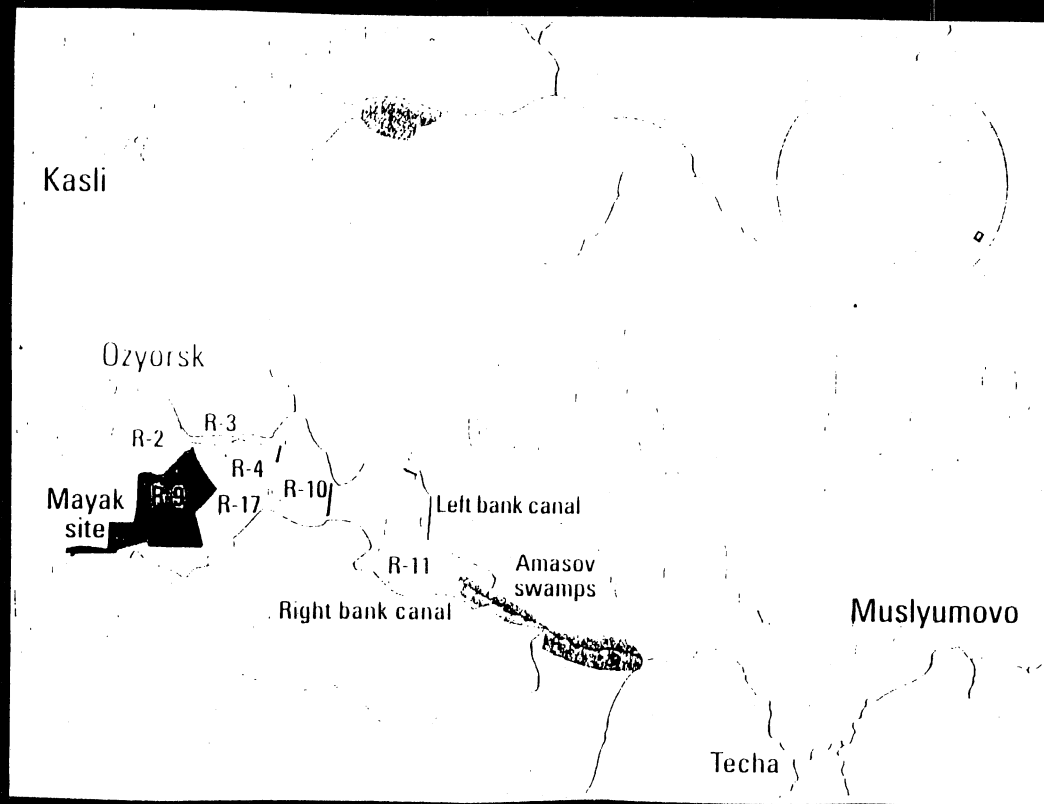
The large concrete reactor cover is at right
Highlights are sunlight streaming in through the windows





THE MAYAK REPROCESSING SITE

Lake Karachay (shown in red) contains
2 billion curies of radwaste





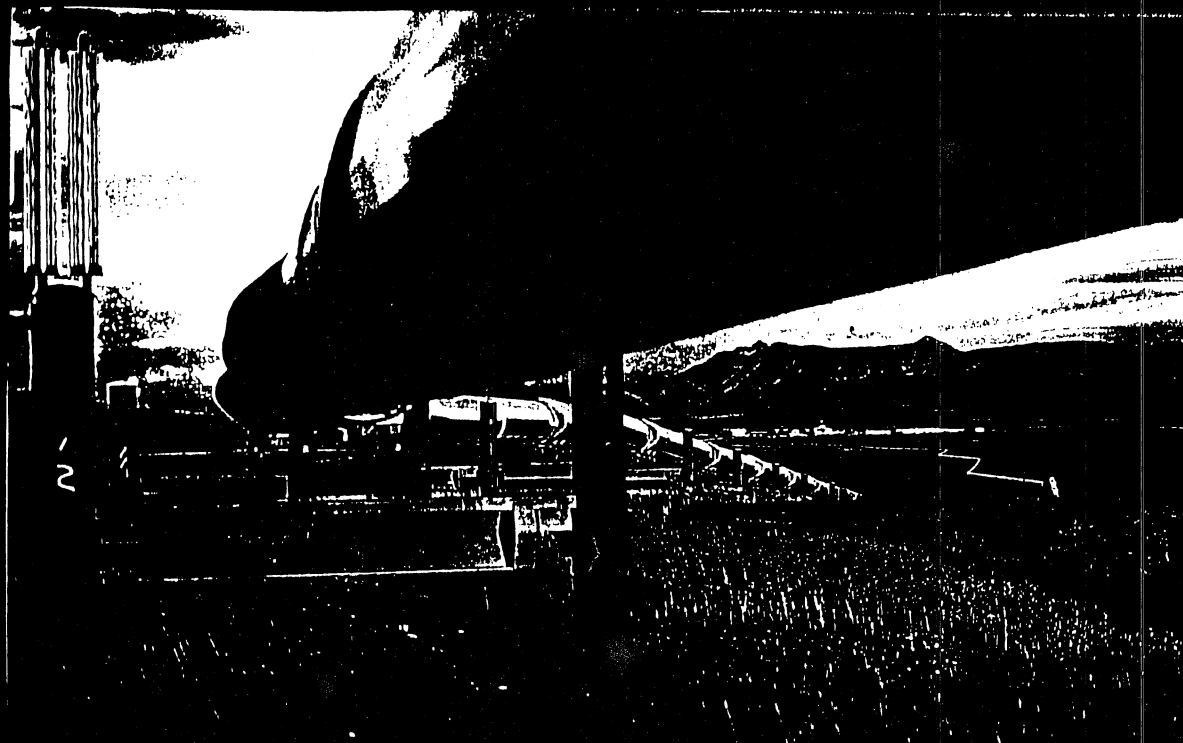
ARCTIC RESEARCH LOGISTICS

- **ICEBREAKERS**
- **SUBMARINES**
- **AIRCRAFT**
- **CAMPS (on ice and on land)**
- **BUOYS**
- **SATELLITES**

- - - - ALL ARE EXPENSIVE

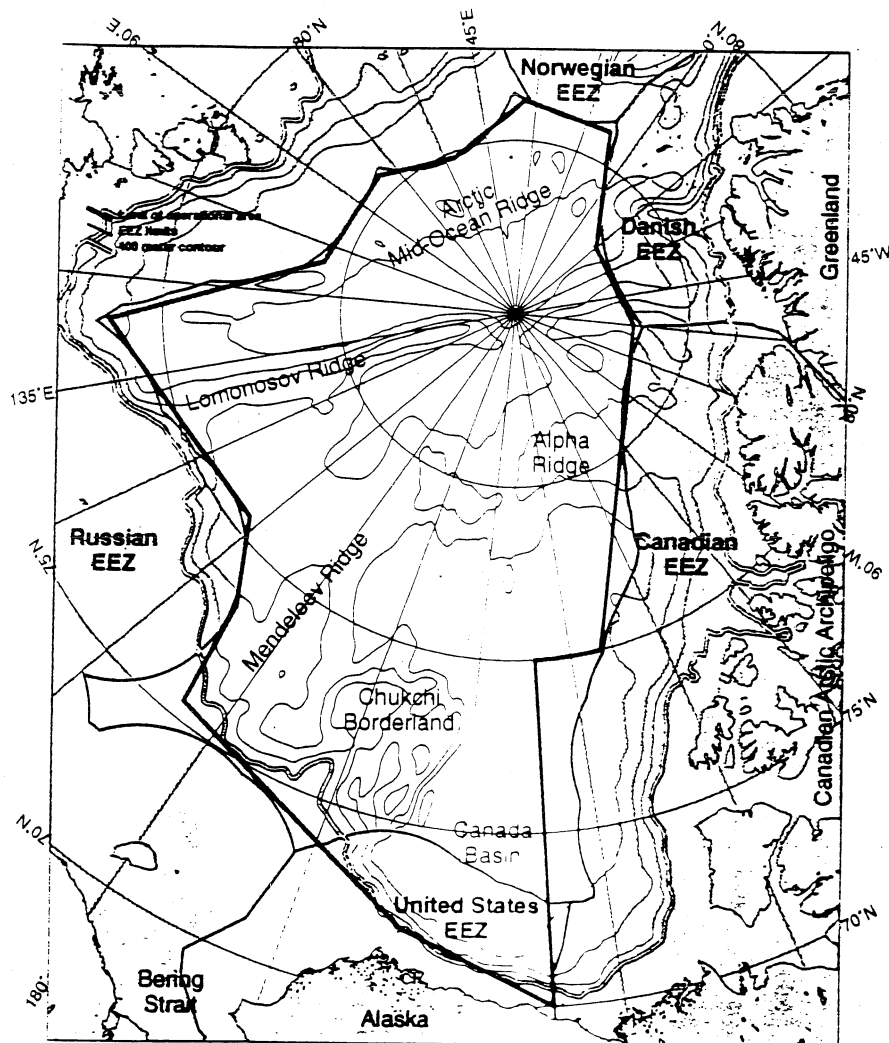


THE TRANS ALASKA PIPELINE



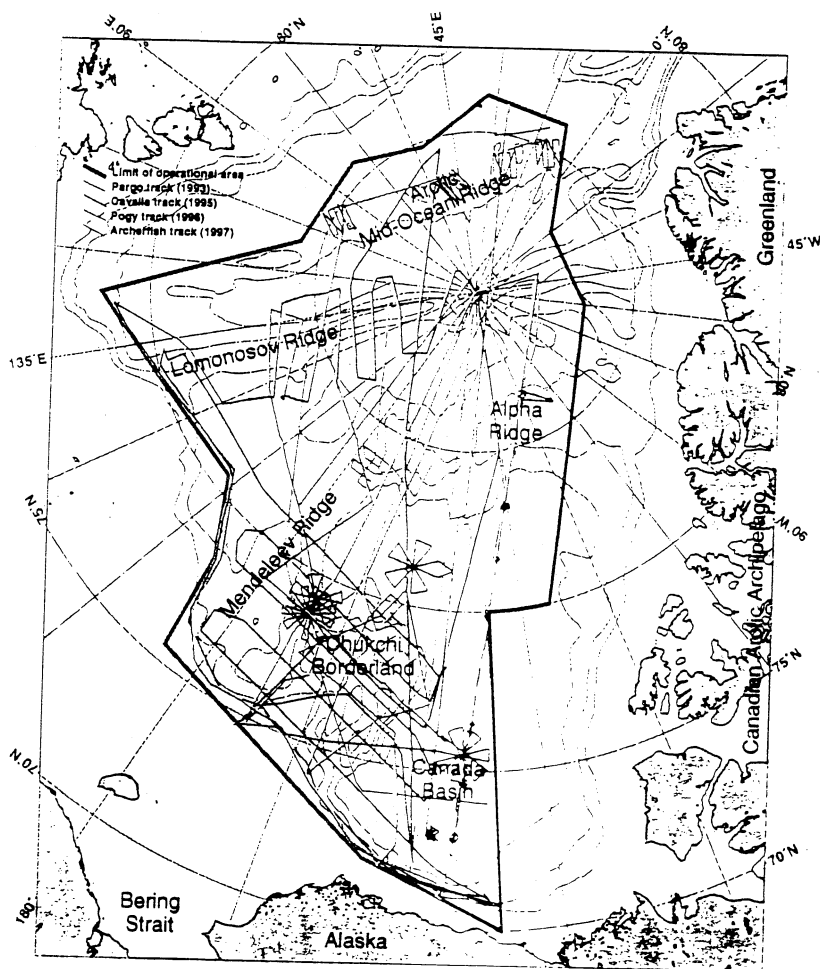


EEZs AND THE SCICEX OPERATING AREA



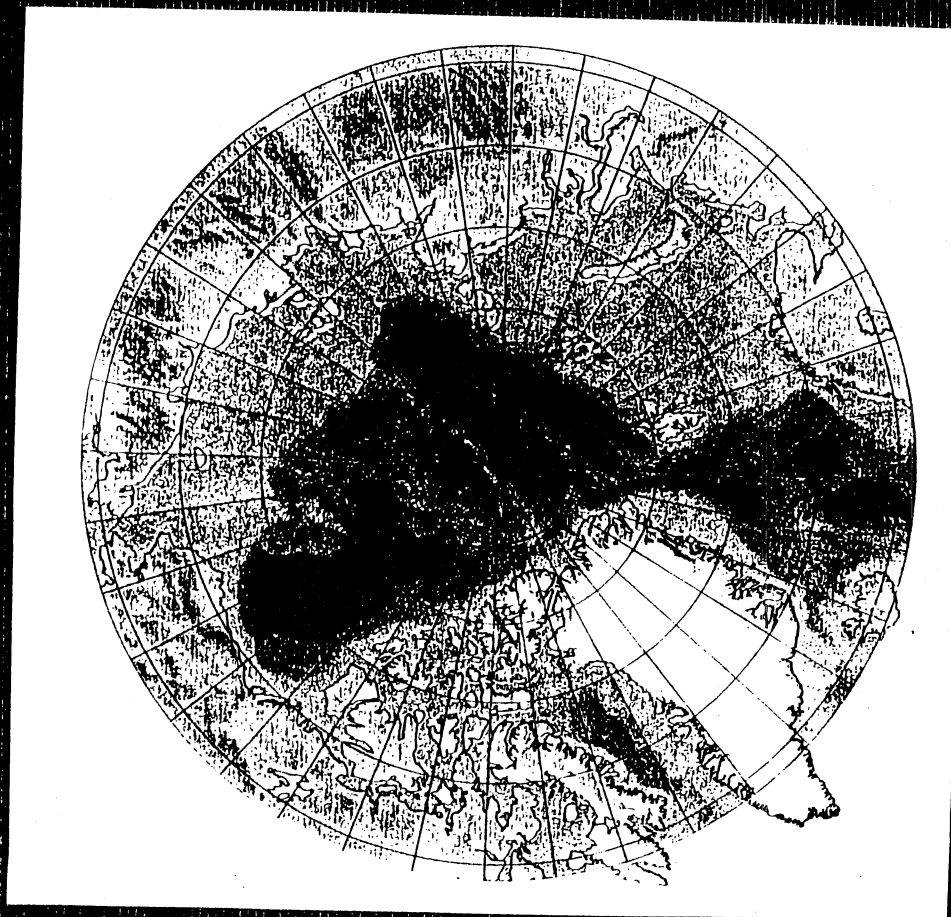


SCICEX CRUISE TRACKS AS OF 1997



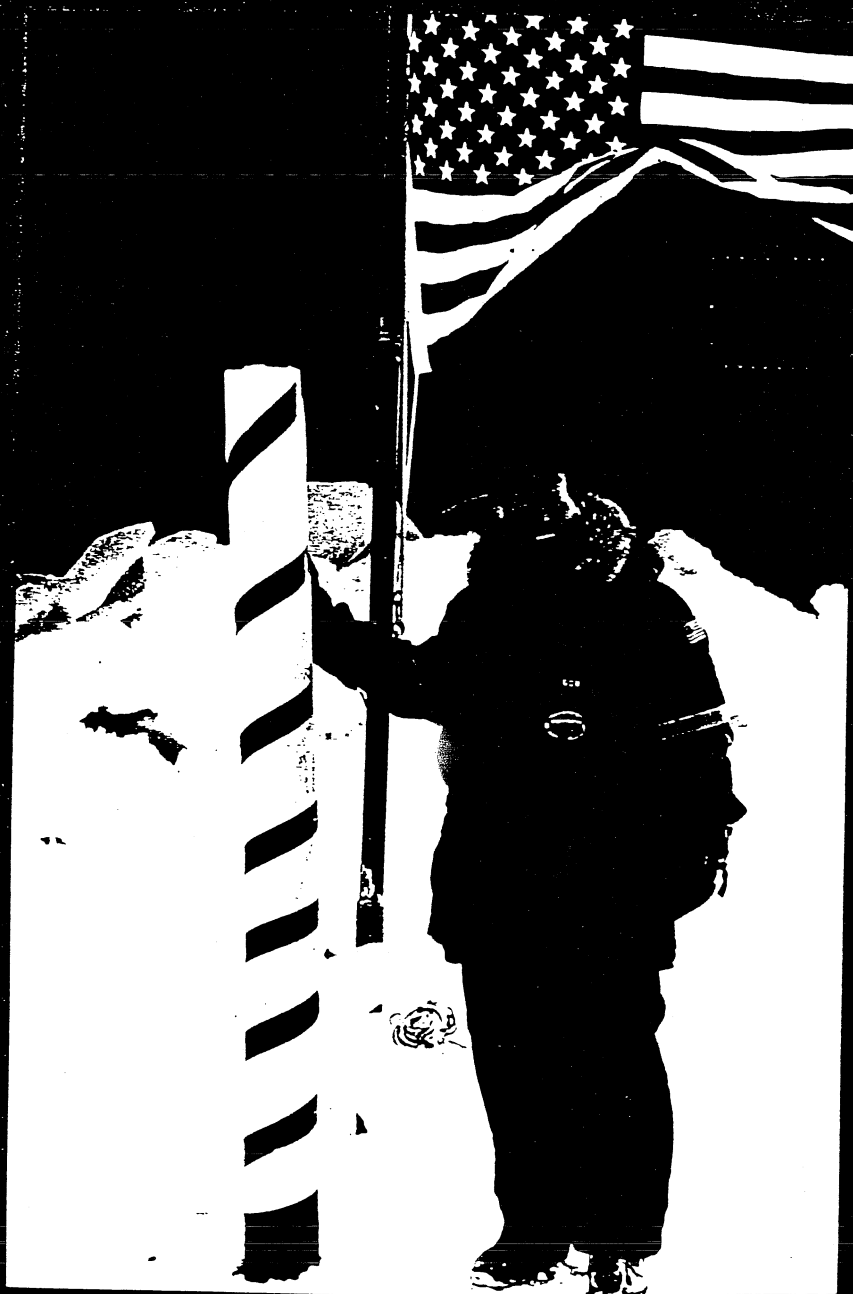


ARCTIC OCEAN BATHYMETRY



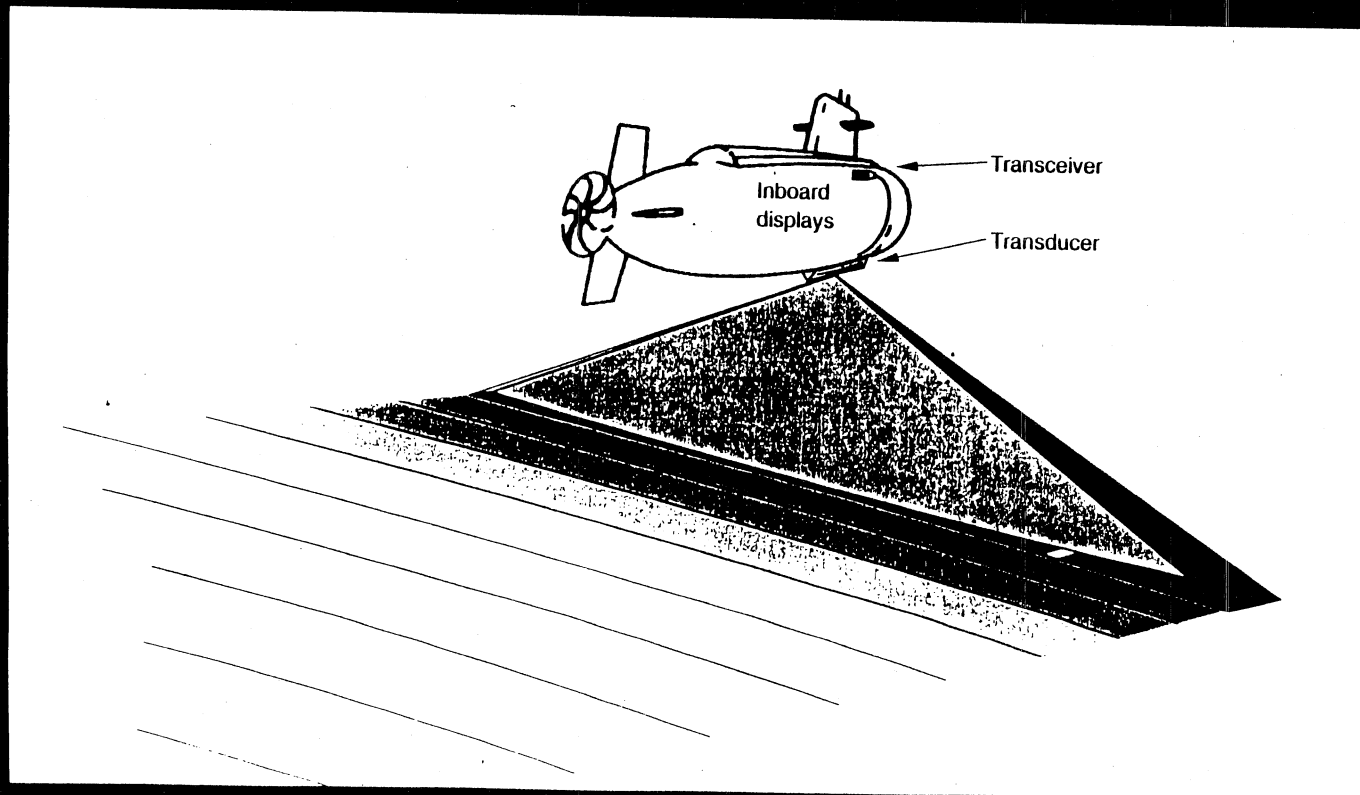


SENATOR (NOW VP) GORE AT THE NORTH POLE





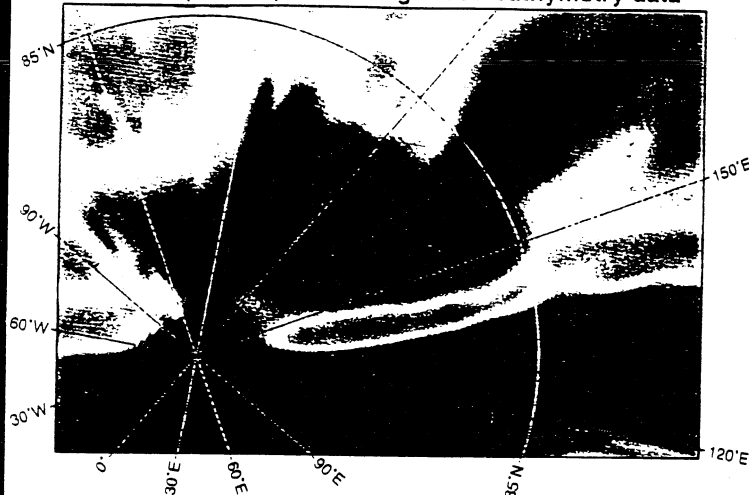
THE SCAMP SYSTEM MOUNTED ON A SUBMARINE





SCICEX DATA REFINES GEBCO BATHYMETRY

GEBCO (DBDB5) 5 minute gridded bathymetry data

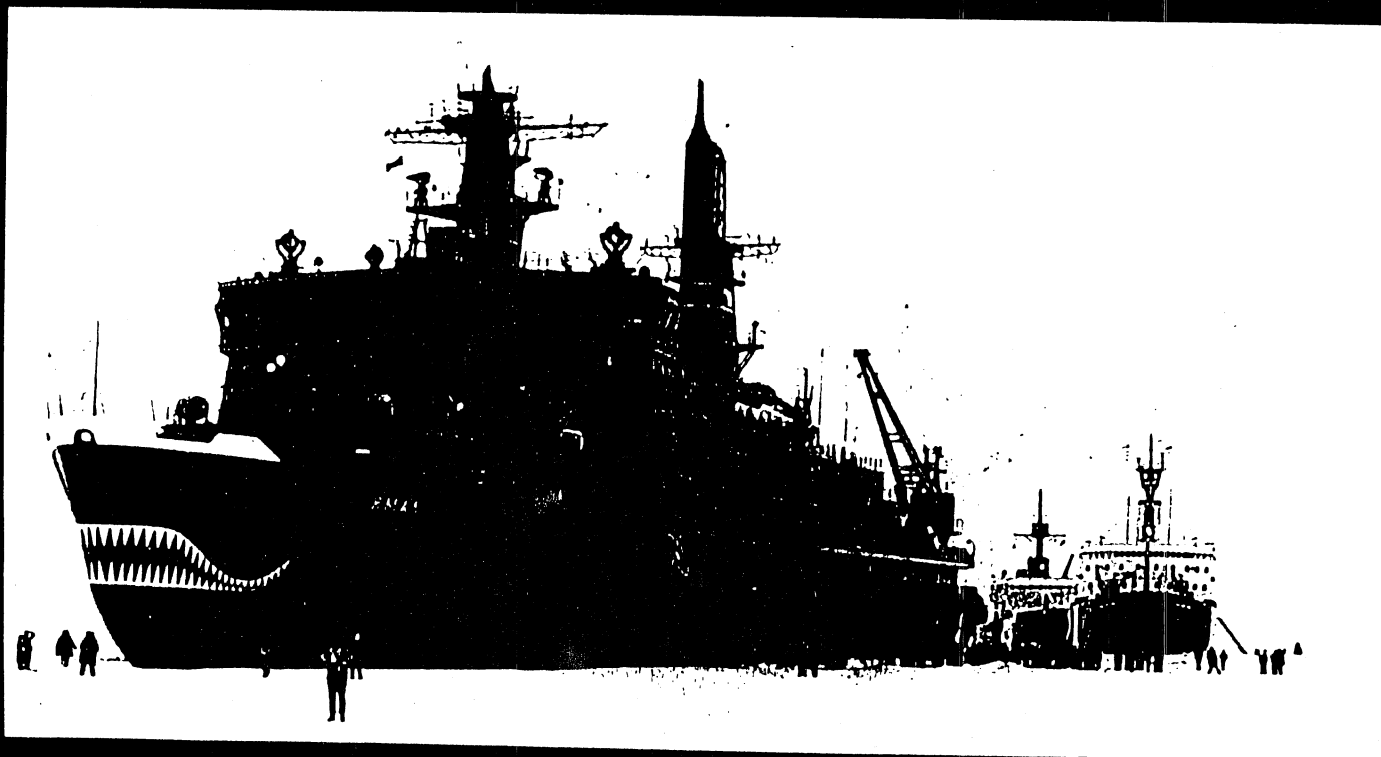


SCICEX 10 kilometer gridded bathymetry and ship tracks.



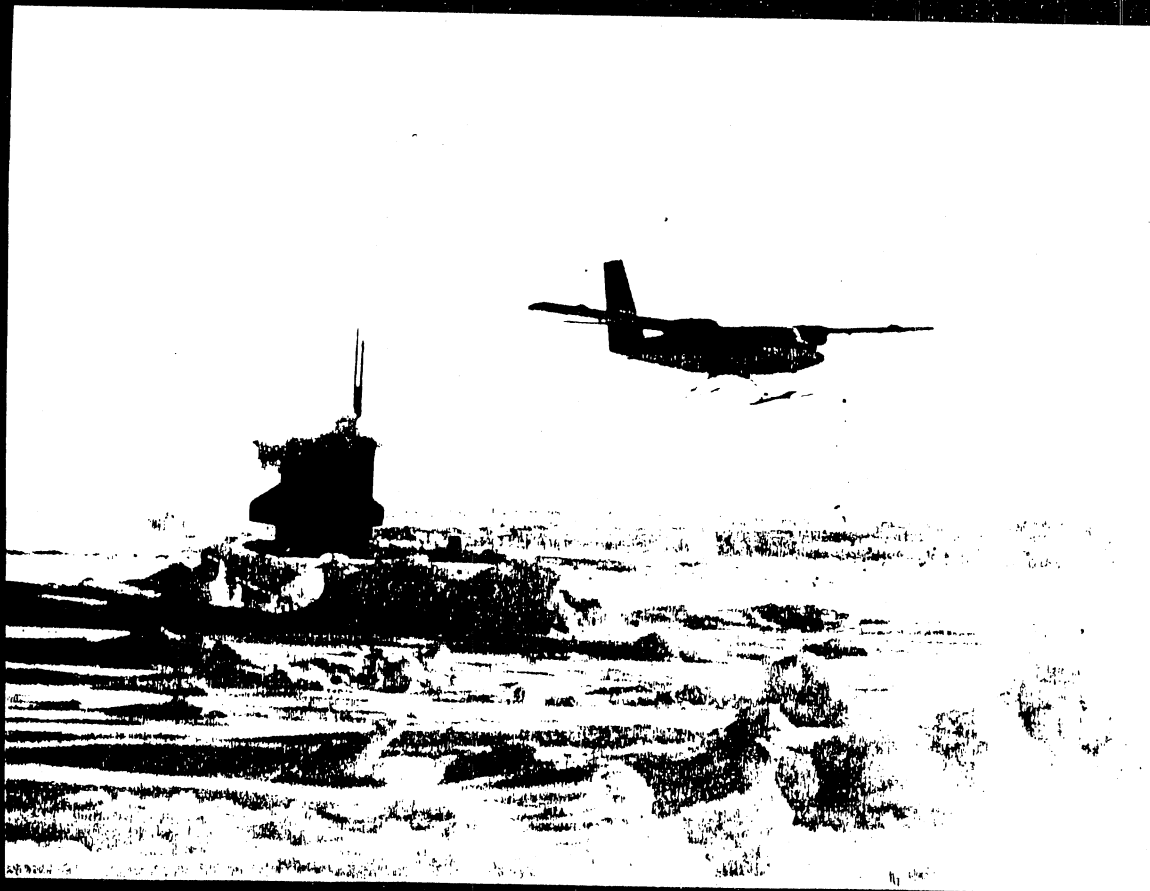


YAMAL, LOUIS ST. LAURENT AND POLAR SEA NORTH POLE 23 AUGUST 1994



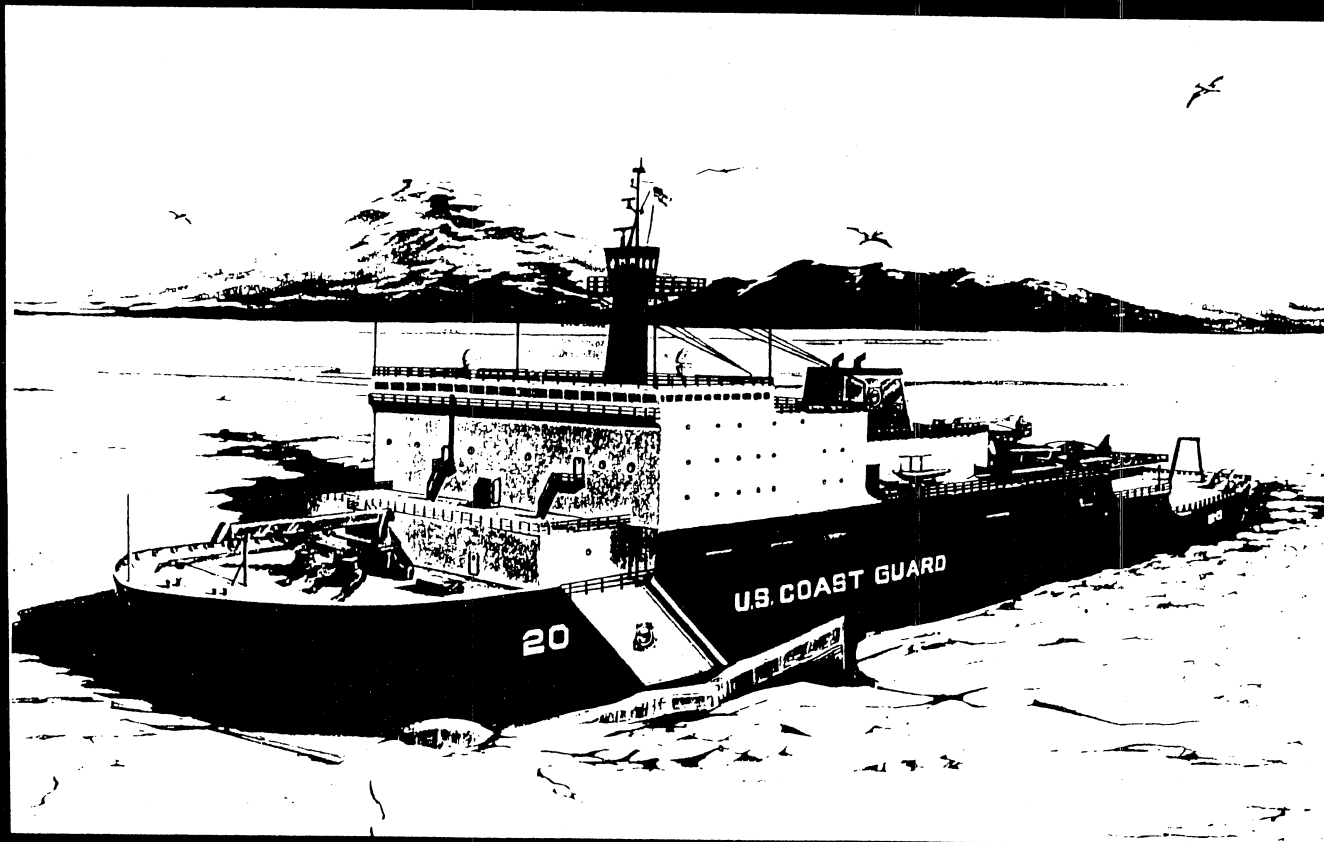


A TWIN OTTER RESUPPLYING A SUBMARINE IN THE ARCTIC





THE US COAST GUARD ICEBREAKER HEALY





A 637 CLASS SSN SURFACED THROUGH THE ICE

