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COMPILATION AND SUMMARY OF INDUSTRIAL
ACTIVITIES IN THE CANADIAN
BEAUFORT SEA, 1986

by

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PRINCIPAL CONTACTS FOR 1986 INDUSTRIAL ACTIVITIES

<u>Company or Agency</u>	<u>Contact(s)</u>
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Department of Fisheries and Oceans	Tom Strong Patt Weaver
Dome Petroleum Limited	Kevin Hewlett Gary Price John Ward
Esso Resources Canada Limited	Ed Bennett Steve Fitzmaurice Kate Nelson
Gulf Canada Resources Inc.	Peter Devenis Keith Jones
LGL Limited	Michael Bradstreet
Northern Transportation Company Limited	Jim Smith
Seaconsult Marine Research Limited	D.Hodgins
University of Alberta	Lois Harwood

1.0 INTRODUCTION

Most industrial activities in the Beaufort Sea region are directly or indirectly associated with the search for oil and gas. Activities in marine areas include: dredging, drilling, seismic and sounding surveys, island/camp maintenance, vessel movements, and helicopter and fixed-wing flights. The types of activities not directly associated with petroleum exploration are typically vessel and aircraft movements in support of Distant Early Warning (DEW) sites, mining explorations and operations, natural resource harvesting, and some research projects. Many of the most recent research projects in the Beaufort Sea have been conducted to assess the effects of industrial activities on different aspects of the marine ecosystem.

Information on industrial activities in the Canadian Beaufort Sea is recorded by the individual companies and a brief yearly summary is compiled by the Canada Oil and Gas Lands Administration (COGLA). The information summarized includes: number of wells spudded, reentered and terminated; metres drilled; kilometres of geophysical surveys completed; number of rigs active; number of rig-months; money spent; and volume of resources discovered. Prior to 1980, COGLA's summary was the only accessible information on site-specific activities in the Beaufort Sea region except for two summaries of dredging activities, one for the 1959-1982 time period (Taylor et al. 1985), and one for the 1982-85 time period (Sackmann et al. 1986). These two summaries include computerized databases with the following information on dredging activities: start and stop dates, load and dump locations, load and dump volumes, sediment types, water depths at the load and dump sites, dredge name and type, and reference.

For the 1980-84 period, information on all types of industrial activities in the Canadian Beaufort Sea was compiled, analyzed and mapped as part of a five-year study funded by the U.S. Minerals Management Service (MMS). The purpose of this study was to assess the possible effects of industrial activities on bowhead whale behaviour. Activities were summarized only for the August to early September time period, i.e. the period during which bowhead whales are concentrated in the Beaufort Sea region (Richardson 1985).

Because the 1985-86 MMS study focused on bowhead behaviour in Alaskan waters and did not collect information on industrial activities in the Canadian Beaufort Sea, the Department of Indian Affairs and Northern Development (DIAND) funded a study (Norton and McDonald 1986) to compile the relevant information starting in 1985. In part this project was designed to delineate the boundaries of a main industrial zone for comparison with the locations of bowhead whale sightings, an

integral requirement of another project for DIAND, "The Beaufort Environmental Monitoring Project" (Indian and Northern Affairs Canada and Environment Canada 1985). The design of the 1985 industrial activity study followed the same format as that of the MMS studies except the time frame was expanded to include the entire period from June 01 to December 31, and available information on activities in nearshore waters (water depths less than 10 m) was included. The 1985 industrial activity study was published in a volume separate from the one on bowhead distribution, and the report included summary tables as well as maps to indicate activity locations and intensity (Norton and McDonald 1986).

The present 1986 study was designed to compile, analyze and summarize the 1986 industrial activities in the Canadian Beaufort Sea for DIAND. The procedures followed in obtaining and entering the data, in tabulating and graphing the information, and in organizing the report during the 1986 study were identical to those followed for the 1985 study. As in 1985, the data were entered onto 5.25 inch floppy diskettes for use on an IBM-PC (or compatible) microcomputer using the dBASE-III database management system. The diskettes are archived with the Northern Environment Directorate of DIAND, Les Terrasses de la Chaudiere, Hull Quebec.

2.0 HISTORY OF INDUSTRIAL ACTIVITIES IN THE CANADIAN BEAUFORT SEA REGION

Petroleum exploration began onshore in the Canadian Beaufort Sea region on a small scale in the 1950's, and did not extend offshore until 1972. Prior to 1972, there was occasional dredging activity in marine areas but this activity was limited to small areas in Tuktoyaktuk Harbour and Tuktoyaktuk Channel (Taylor et al. 1985). Drilling in nearshore marine waters required construction of a drilling platform. At first, artificial islands were constructed as drilling platforms and this construction resulted in higher levels of industrial activities being required in comparison to drilling onshore. Several types of artificial islands evolved to counter the problems of wave and current erosion and lateral stresses induced by encroaching ice fields.

The initial drilling sites (in 1972) were limited to shallow water locations (water depths less than approximately 2 m). Some of the first artificial islands were constructed during winter. The bottom-fast ice was excavated and cleared from each construction site using heavy land-based equipment working from the ice surface. Trucks were used to haul fill over the ice from land-based quarries to each site.

Since 1972, most island structures have taken the form of "surface-piercing islands" (Sackmann et al., 1986). Fill material was usually delivered from off-site locations, and barge camps were used to house personnel at the site. Most "surface-piercing" island construction occurred during the open-water season and drilling followed, usually during the winter and spring. Land rigs were used to drill from all of these early drilling platforms.

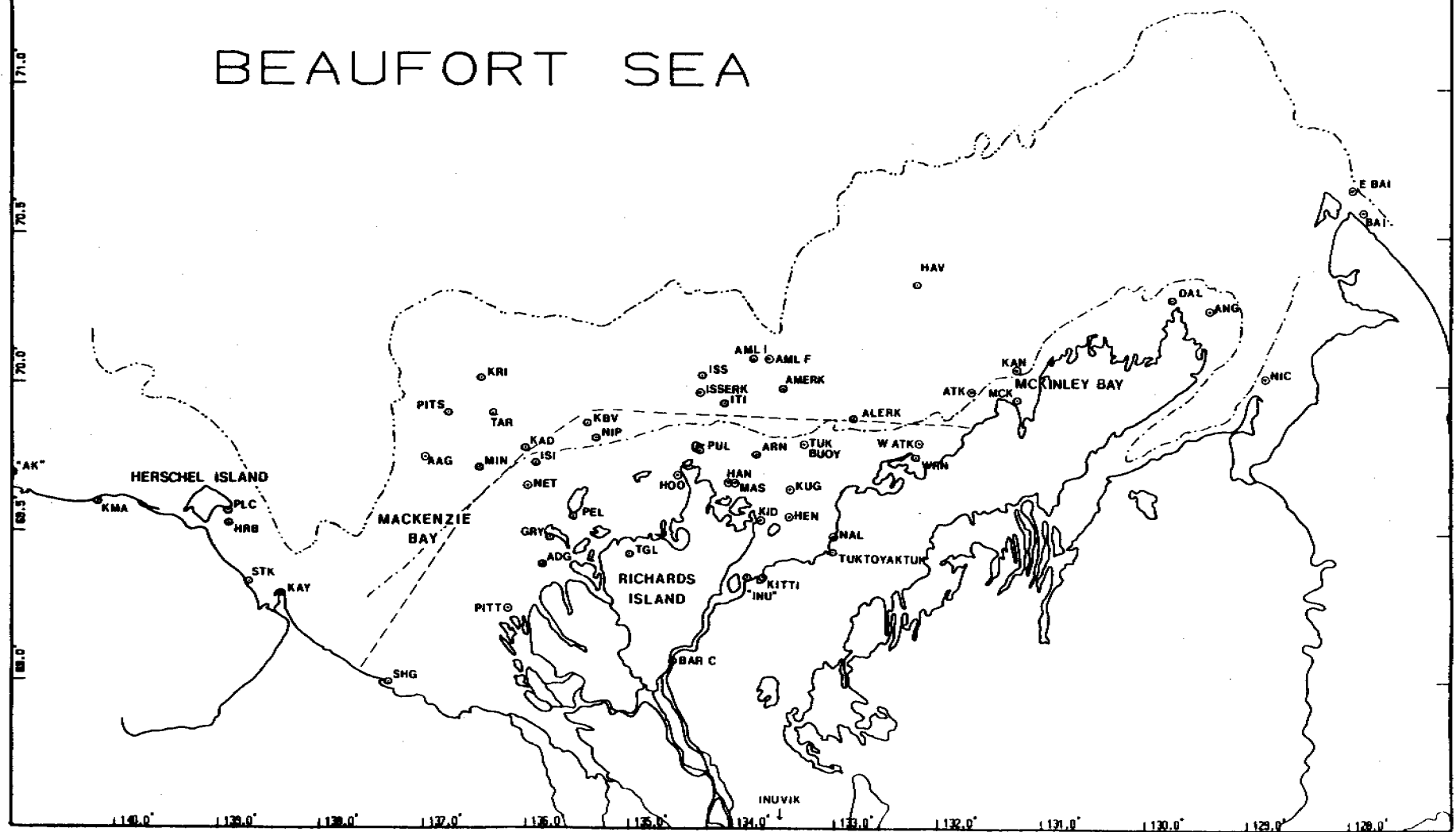
Most of the early marine industrial sites were located within the Mackenzie estuary or near McKinley Bay (Figure 1). Construction of "surface-piercing" type islands was limited to water depths of less than 20 metres because of the extremely large fill requirements for construction in deeper waters, i.e., an arithmetical increase in the water depth at a proposed artificial island site requires an exponential increase in the volume of fill required. Issungnak, at a water depth of 18 metres, is the deepest "surface-piercing" type island constructed in the Canadian Beaufort Sea. During the early period of marine exploration (1972-76), Inuvik was the primary support base and much of the vessel traffic was along river channels.

The open-water period of 1976 was the first time ships were used as drilling platforms in the Canadian Beaufort Sea. During winter, these drillships were moored in one of the deeper-water harbours available in the southeast Beaufort Sea, i.e. Pauline Cove (at Herschel Island) and McKinley Bay after some modification (Figure 1). In late spring, as soon as break-up was complete, the drillships would proceed as quickly as possible to proposed drill sites. Drilling activities would be conducted until freeze-up and then the drillships would proceed back to their deeper-water harbours for winter moorage.

Drillships require very little on-site dredging other than the excavation of glory holes; however, their loaded draft is deeper than that of most vessels used in island construction and so the introduction of drillships into the area resulted in an increase in the dredging of harbours and channels, especially in McKinley Bay where most of the drillships eventually overwintered. The introduction of drillships into the Beaufort Sea region in 1976 also expanded the geographic extent of the industrial area. The cost of operating a drillship in deep water was not so prohibitive as constructing large-based "surface-piercing" type islands and hence drilling activities increased in intensity and quickly expanded into waters deeper than 20 metres. The deeper-water harbours for over-wintering the drillships often opened earlier than other ports and the result was vessel traffic both earlier in the openwater season and over a greater area than prior to the arrival of the drillships. Tuktoyaktuk became the primary support base after 1976 because it was closer to the offshore drilling sites at that time than Inuvik.

FIGURE 1- BEAUFORT SEA STUDY AREA

BEAUFORT SEA



In 1982 and 1983, respectively, two new types of drilling platforms were introduced in the Canadian Beaufort Sea: the caisson-retained island and the mobile drilling platform supported by a sub-sea berm. Although both of these platforms require a fill base, the volume of fill necessary is much less than that required by the "surface-piercing" type islands. The construction of caisson-retained islands and sub-sea berms usually occurred during the openwater season; but once built, drilling from these platforms occurred throughout all seasons of the year. Conventional land rigs could be used to drill from caisson-retained islands.

The efficiency of "islands" as drilling platforms was dramatically increased with the introduction of caisson-retained islands and mobile drilling platforms on sub-sea berms. Both changes significantly reduced the fill required for each new platform and, thus, the construction time. The introduction of hopper dredges, in 1981, reduced the use of barges to transport fill material, which reduced the number of vessels needed for island construction. These changes resulted in a decrease in cost and time needed to build each drilling platform and there was an increase in the number of active sites during the 1982-85 period. The number of wells spudded in the Mackenzie Delta-Beaufort Sea region was almost double for the 1982-84 period as for the 1979-81 period, 24 wells as compared with 13 (Canada Oil and Gas Lands Administration 1986; Department of Indian and Northern Affairs 1983).

Drilling and dredging are only some of the industrial activities necessary in offshore oil and gas exploration. Other activities that are involved include: seismic (high intensity) and sounding (low intensity) surveys to locate gravel sources, identify shipping routes and examine sediment materials for oil-producing formations; helicopter and fixed-wing flights to transport personnel (and sometimes supplies) between onshore bases and offshore active sites; and, vessel movements to transport supplies (and sometimes personnel) between onshore and offshore sites.

3.0 METHODS

3.1 Scope

3.1.1 Spatial

The spatial boundaries of the 1986 industrial activity study were identical to those of previous studies (Richardson 1985; Norton and McDonald 1986): west to longitude 141 degrees West (Canada-Alaska border), east to longitude 127 degrees West, south to latitude 68.5 degrees North, and north to latitude 72

degrees North (Figure 1). The boundary of the Mackenzie estuary, the location of offshore active sites (designated by locator codes), the 10 m and 50 m isobaths, and names of prominent geographic features referred to in this report are also shown on Figure 1. The complete names and/or locations for each of the active site locator codes are presented in Table 1. Locations that were used for short time periods, such as where icebreakers waited during ice patrols, were not given locator codes but were designated using latitudes and longitudes.

3.1.2 Temporal

Information on the 1986 industrial activities has been entered, analyzed and mapped according to 10 or 11-day intervals for the July 01 to September 30 period (to allow comparison with information in Richardson 1985), and in monthly intervals for June, October, November and December. Summary maps and tables are also included for July, August and September to allow direct comparison on a monthly basis. The information was collected and recorded onto the original data sheets according to daily intervals; these sheets are archived at ESL Environmental Sciences Limited, Sidney, British Columbia.

3.2 Data Collection

The study team contacted all of the oil and gas companies operating in the Canadian Beaufort Sea region in 1986 and all contracting and consulting firms that might have information on other activities. A list of the principal contacts is given in "Acknowledgments".

The procedure followed to obtain the information varied according to the type of activity. The following sections present a brief summary of the format of the available information, the data collection method, and the completeness of the information database.

3.2.1 Seismic and Sounding

Seismic and sounding information is proprietary and can only be obtained with permission from the company funding the surveys. For 1986, information on seismic activities was requested and permission was granted from the funding company. However, although several written and verbal requests were made by ESL and the Scientific Authority to the geophysical company conducting the surveys, necessary details (the latitude and longitude of the starting point and end point of each line, and the date the line was shot) regarding 1986 seismic activities were not provided in time for inclusion in this report.

TABLE 1

LIST OF LOCATION CODES FOR OFFSHORE SITES

LOCATION CODE	LOCATION
AAG	AAGNERK
ADG	ADGO
AK	ALASKA
ALERK	ALERK
AMERK	AMERK
AML F	AMAULIGAK F-24
AML I	AMAULIGAK I-65
ANG	ANGASAK
ARN	ARNAK
ATK	ATKINSON POINT
BAI	BAILLIE ISLAND
BAR C	BAR C
DAL	DALHOUSIE AREA
E BAI	EAST BAILLIE
GRY	GARRY ISLAND
HAN	HANSON
HAV	HAVIK
HEN	HENDRICKSON
HOO	HOOPER ISLAND
HRB	HERSCHEL BASIN
INU	INUVIK
ISI	ISSIGAK
ISS	ISSUNGNAK
ISSERK	ISSERK
ITI	ITIIYOK
KAD	KADLUK
KAN	KANNERK
KAY	KAY POINT
KBV	KAUBVIK
KID	KIDLUIT
KITTI	KITTIGAZUIT
KMA	KOMAKUK
KRI	KRINGALAK
KUG	KUGMALLIT
MAS	MASON BAY
MCK	MCKINLEY BAY
MIN	MINUK
NAL	NALLUK
NET	NETSERK
NIC	NICHOLSON
NIP	NIPTERK
PEL	PELLY ISLAND
PITS	PITSIULAK
PITT	PITT ISLAND
PLC	PAULINE COVE
PUL	PULLEN ISLAND

TABLE 1

LIST OF LOCATION CODES FOR OFFSHORE SITES (continued)

SHG	SHINGLE POINT
STK	STOKES POINT
TAR	TARSIUT
TGL	TAGLU
TUK BUOY	TUK BUOY
W ATK	WEST ATKINSON
WRN	WARREN POINT

In 1986, only one oil and gas company conducted sounding surveys. The information necessary for this project was obtained from conversations with the company's personnel and from the vessel dispatcher's log sheets. Because sounding surveys involve shooting an intensive grid pattern around one site, the information collected included the location of the survey and the date the survey was shot.

3.2.2 Vessel Activities

Many of the vessels active in the Beaufort Sea region are chartered from transport companies. The chartering (oil and gas) companies keep records on all vessels in their employ, regardless of the vessel's ownership. These records are stored in the companies' Calgary offices and the study team extracted necessary information from those files.

The level of detail and method of organization for vessel information varies from company to company. The information is stored either on daily vessel location sheets (which contain the vessel's location at a set time each day and the planned activities for the next 24 hours) or on daily vessel report forms (which contain almost continuous information on the vessel's location and activities throughout each 24-hour period) or on dispatcher's log sheets (which contain the times and end points of vessel movements, and comments on vessel activities). Some interpretation was necessary when extracting information from the daily vessel location sheets. Sometimes the vessel's location on a particular day did not correspond with the location expected according to the previous day's plan, or the vessel was at one of several locations indicated by the previous day's plan and it was not obvious if the vessel had completed all of the previous day's assignment and had returned to that spot or was in the process of carrying out the assignment. The numbers of trips between specific locations were tabulated by vessel per day. Since many trips spanned more than one day, interpretation was necessary in assigning a particular trip to a particular day.

Records of vessel movements for transport of supplies to DEW line sites and communities are kept by transport companies and stored in their respective head offices (Edmonton or Calgary, depending on the company). From these records, the study team received written descriptions of these supply trips including the starting and end points, the starting and end times, and the name of the vessel for each trip. The level of detail and storage form of the original information is not known. It has been assumed for this report that a supply vessel leaving Tuktoyaktuk on one day also left the 1986 study area on that day, unless there is information to the contrary (i.e., the end point was within the study area).

3.2.3 Aircraft Activities

As for vessel activities, records of aircraft movements are kept by the companies funding the activities, and not necessarily by the aircraft charter companies. The oil and gas companies store their information in Calgary, either in computer files or on standard flight forms. From these records, the study team compiled the relevant 1986 data. The number of 1986 flights between specific locations was tabulated by aircraft per day. Every take-off and landing was recorded, even if the aircraft was airborne for only a few minutes. Most flights were direct from one location to another; however, a few flights (less than one percent) started and finished at the same location and hence there was no information on the specific flight path because the aircraft had not landed. Such flights were not recorded in the 1986 database. Flights completely over land were also omitted. For some flight records (approximately 15 percent), aircraft call letters were not given and only information on the type of aircraft (e.g., Twin Otter, Bell 212) was readily available.

Aircraft starting and end points were frequently described in industry records by the name of a facility or vessel present at that location, e.g., Rig 32 or "Gulf Beaufort", rather than by a geographic name. Information on locations of specific rigs and camps was requested (and provided) by the oil companies. Vessel location information was obtained from actual vessel records. This was possible because the information on vessel movements was obtained before the information on aircraft movements.

Aircraft flights at altitudes above 600 m were not included in the database to ensure compatibility with previous studies (Richardson 1985; Norton and McDonald 1986). It was assumed that all flights for oil companies were at altitudes below 600 m and that all scheduled flights were at altitudes above 600 m.

3.2.4 Research Activities

Consulting companies and government agencies were contacted to determine what research programs had been undertaken in the study area in 1986. A check was then made to see if the research vessel and/or aircraft movements had been incorporated into the 1986 database. Missing information on research vessel and/or aircraft movements was then requested from the contracting companies. Available information was collected on all research flights flown below 1000 m. In previous years the cut-off point for all research aircraft flights was 600 m. In 1986, research aircraft flights flown at altitudes between 601 and 1000 m have been included because most research surveys involve the flying of grid patterns, not just one single pass through an area, and the

possibility for disturbance increases when several passes are made. To compensate for this, the cut-off altitude point was increased from 600 m to 1000 m for all research aircraft flights. There were no reported 1986 research aircraft flights in the Beaufort Sea region at altitudes greater than 1000 m.

Information on photographic flights was not readily available and hence this type of information was not entered in the 1986 database. Photographic flights have the greatest potential for marine mammal disturbance since they involve circling over one spot for an extended period of time, often at altitudes lower than systematic survey flights (i.e., 100 or 150 m).

3.3 Data Entry and Tabulation

The Ashton-Tate dBASE-III data management system was used in the design of a microcomputer database for access to and storage of all relevant 1986 industrial activities information. A unique database structure was established for each activity group (seismic, vessel, aircraft and research). The four dBASE-III files are entitled "SEISMIC.DBF", "VESSEL.DBF", "AIRCRAFT.DBF" and "RESEARCH.DBF". The structures for each of the files are presented in Table 2.

The information collected from the companies was standardized according to each activity type format requirements and then entered into the appropriate dBASE-III activity data file using an IBM-PC (or compatible) microcomputer. The activity data files are stored on 5.25 inch floppy diskettes and a complete copy of the 1986 database has been provided to the Department of Indian Affairs and Northern Development for archiving.

3.4 Computer Mapping

Computer-generated maps were produced by time period for each of the four activity groups. A PASCAL program was written to convert the dBASE-III data file for each activity group into a format that could be read by ESL's plotting program. The converted data files include: the latitudes and longitudes of the start-points, mid-points (if any), and stop-points for each trip; the number of times each trip was made; and the time period during which each trip was made. Mid-points are additional location information for segments of some vessel trips. The additional mid-point locators are required for many of the nearshore vessel trips since the vessels would have had to navigate between islands and around shallow areas. Aircraft usually fly directly to their destination and hence do not require additional mid-points to define their flight paths. Vessel traffic in the river channels was not mapped;

TABLE 2
STRUCTURE OF DATA FILES FOR 1986 AIRCRAFT, RESEARCH,
VESSEL AND SEISMIC ACTIVITIES

Structure for database: VESSEL.dbf
Number of data records: 446

Field	Field Name	Type	Width	Dec
1	TIME_FRAME	Character	17	
2	TIME	Numeric	2	
3	VESSEL_NME	Character	21	
4	NUM_TRIPS	Numeric	4	
5	STRT_CODE	Character	25	
6	STOP_CODE	Character	25	
7	STRT_LATDG	Numeric	2	
8	STRT_LATMN	Numeric	4	1
9	STRT_LONDG	Numeric	3	
10	STRT_LONMN	Numeric	4	1
11	MID1_LATDG	Numeric	2	
12	MID1_LATMN	Numeric	4	1
13	MID1_LONDG	Numeric	3	
14	MID1_LONMN	Numeric	4	1
15	MID2_LATDG	Numeric	2	
16	MID2_LATMN	Numeric	4	1
17	MID2_LONDG	Numeric	3	
18	MID2_LONMN	Numeric	4	1
19	MID3_LATDG	Numeric	2	
20	MID3_LATMN	Numeric	4	1
21	MID3_LONDG	Numeric	3	
22	MID3_LONMN	Numeric	4	1
23	STOP_LATDG	Numeric	2	
24	STOP_LATMN	Numeric	4	1
25	STOP_LONDG	Numeric	3	
26	STOP_LONMN	Numeric	4	1
** Total **			160	

Structure for database: AIRCRAFT.DBF
Number of data records: 637

Field	Field Name	Type	Width	Dec
1	TIME_FRAME	Character	17	
2	TIME	Numeric	2	
3	PLANE_NME	Character	20	
4	NUM_TRIPS	Numeric	4	
5	STRT_CODE	Character	25	
6	STOP_CODE	Character	25	
7	STRT_LATDG	Numeric	2	
8	STRT_LATMN	Numeric	4	1
9	STRT_LONDG	Numeric	3	
10	STRT_LONMN	Numeric	4	1
11	STOP_LATDG	Numeric	2	
12	STOP_LATMN	Numeric	4	1
13	STOP_LONDG	Numeric	3	
14	STOP_LONMN	Numeric	4	1
** Total **			120	

TABLE 2 (continued)
STRUCTURE OF DATA FILES FOR 1986 AIRCRAFT, RESEARCH,
VESSEL AND SEISMIC ACTIVITIES

Structure for database: RESEARCH.dbf

Number of data records: 327

Field	Field Name	Type	Width	Dec
1	TIME_FRAME	Character	17	
2	TIME	Numeric	2	
3	VESSEL_NME	Character	21	
4	NUM_TRIPS	Numeric	4	
5	STRT_CODE	Character	25	
6	STOP_CODE	Character	25	
7	STRT_LATDG	Numeric	2	
8	STRT_LATMN	Numeric	4	1
9	STRT_LONDG	Numeric	3	
10	STRT_LONMN	Numeric	4	1
11	MID1_LATDG	Numeric	2	
12	MID1_LATMN	Numeric	4	1
13	MID1_LONDG	Numeric	3	
14	MID1_LONMN	Numeric	4	1
15	MID2_LATDG	Numeric	2	
16	MID2_LATMN	Numeric	4	1
17	MID2_LONDG	Numeric	3	
18	MID2_LONMN	Numeric	4	1
19	MID3_LATDG	Numeric	2	
20	MID3_LATMN	Numeric	4	1
21	MID3_LONDG	Numeric	3	
22	MID3_LONMN	Numeric	4	1
23	STOP_LATDG	Numeric	2	
24	STOP_LATMN	Numeric	4	1
25	STOP_LONDG	Numeric	3	
26	STOP_LONMN	Numeric	4	1
** Total **			160	

Structure for database: SOUNDING.dbf

Number of data records: 13

Field	Field Name	Type	Width	Dec
1	TIME_FRAME	Character	20	
2	TIME	Numeric	2	
3	VESSEL_NME	Character	35	
4	STRT_LATDG	Numeric	2	
5	STRT_LATMN	Numeric	4	1
6	STRT_LONDG	Numeric	3	
7	STRT_LONMN	Numeric	4	1
8	STOP_LATDG	Numeric	2	
9	STOP_LATMN	Numeric	4	1
10	STOP_LONDG	Numeric	3	
11	STOP_LONMN	Numeric	4	1
12	LINE_SHOT	Numeric	5	
** Total **			89	

trips to Inuvik were mapped as far as the mouth of East Channel (see "INU" location on Figure 1). The actual site of Inuvik was used for aircraft movements.

From the converted activity file, the ESL plotting program was used to read in the trip locators (i.e., start location, up to three mid-point locations and stop location) for each activity trip and, depending on the number of mid-points, to divide up each activity trip into separate trip segments. For example, a vessel trip with two mid-points would be divided up into three trip segments for plotting, and a trip with no mid-point would be divided up into only one trip segment start to finish.

The plotting routine would then write the latitude and longitude of the start-point and end-point of each trip segment into a check file called "Tripslist". "Tripslist" is used to check if the trip segment data being received has already been entered for a specific time period. If this is the case, a new record is not written but rather the field containing the number of trips is increased by one. This ensures that each trip segment is plotted only once for each time period. Replotting trip segments for the more frequent trips can cause a poor-quality final product, i.e., ink smears and paper tears result from multiple pen passes. When all of the data for each activity has been received, a copy of the "Tripslist" file is printed; this list is used to check the locations of all data plots and the number of times each trip is indicated for each time period.

The "Tripslist" data were plotted using an Hewlett-Packard 7550 (or compatible) plotter for each activity by time period. The frequency of use of each trip segment was indicated by line type and thickness. Three frequency ranges have been selected: 1-10 trips per time period (thin dashed line), 11-50 trips per time period (thin continuous line) and greater than 50 trips per time period (thick continuous line). For the months July, August and September, the activity data were plotted in 10 and 11-day time periods (see Section 3.1.2). Summary maps of all monthly activities were also plotted for the entire study period, June to December, so that direct comparisons could be made between activity frequencies for each of the months.

The types of site-specific activities occurring at offshore sites have been indicated by different symbols on the maps. As initially outlined in Richardson (1985), separate symbols are used to depict the following activities: borrow site/dredge, island/berm construction, island drilling, island/other activity and drillship.

3.5 Defining the Main Industrial Zone

One of the purposes of this study was to define the 1986 main industrial zone (MIZ). Such a zone has been defined for previous years (Richardson 1985; Duval 1986), but the procedures used to define the zones have not been clearly outlined.

For this project, there were two steps used in defining the MIZ. First, the initial boundaries were determined by connecting the outermost active sites that had either drilling or dredging activities, or that served as a major support base. Sites with these activities were selected because these types of sites are most likely to have relatively high levels of both vessel and aircraft movements as well as reoccurring periods of continuously high noise levels. Usually such sites are active for extended time periods. Nevertheless, a check was made to ensure that all selected boundary sites had activities over at least two time periods, i.e. 20 or 21 days during the open water season. Any locations where dredging or drilling occurred for less than the specified two time periods were then deleted, and the initial MIZ boundaries redrawn accordingly.

The next step in defining the MIZ was to assess the number of vessel and then aircraft trips between specific locations, in particular trips with segments outside the MIZ as defined in the first step. Both the number of trips and the period of time during which the traffic occurred were taken into account. For a trip segment (and hence its end points) to be considered, there must have been at least 25 trips along that segment during two time periods (20 or 21 days in the open water period). Take a hypothetical example of 35 trips between two points, A and B, between June 01 and December 31. If 30 of these trips were concentrated within a three-week period during the open-water season, points A and B should fall within the MIZ, and the initial MIZ boundary lines would be redrawn accordingly. However, if the trips occurred in random clusters of two to five trips per open water time period between June 01 and December 31, the boundary of the MIZ would not be extended to include these two points. Emphasis has been placed on the open-water season because that is the period when many of the species of interest are in the study area, levels of industrial activities are usually the highest, and geographic extent of activities is usually the greatest.

Seismic and sounding and research activities are not used to define the MIZ. These activities usually occur within any one sub-area for a short time period (e.g., a few minutes or a few hours) and any reoccurrence in that subarea is a relatively

long time later (e.g., two weeks). Over the open-water period, seismic, sounding and research activities are usually spread over large areas, if not the entire study area.

The MIZ boundaries for a particular year outline the area within which most of the industrial activity occurred that year. This does not mean that the level of industrial activity was consistent over the MIZ, nor that activity even occurred within each small sub-area of the MIZ, nor that the level of activity in the MIZ was consistent from one time period to the next. When comparing distributions of species which do not reside year-round in the area to locations of industrial activities, a new industrial zone should be defined based on the locations of industrial activities occurring during the time period(s) of interest.

4.0 DESCRIPTION OF 1986 INDUSTRIAL ACTIVITIES

Three oil companies (Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Inc.); one geophysical company (Geophysical Service Inc.); and two transport companies (Arctic Transportation Limited and Northern Transportation Company Limited) were active in the Beaufort Sea region during the June 01 to December 31, 1986 study period. Four consulting firms (ESL Environmental Sciences Limited, LGL Limited, Seakem Oceanography Limited, and Seaconsult Marine Research Limited), one university (University of Alberta), and one government agency (Department of Fisheries and Oceans) conducted research programs in the area. At least three air charter companies (Aklak Air Limited, Kenn Borek Air Limited and Okanagan Helicopters Limited) provided aircraft for the industrial and research projects, and at least three air charter companies (Aklak Air Limited, Kenn Borek Air Limited and Ram Air Charter Limited) maintained scheduled flights.

Most of the 1986 industrial activities occurred between the Alaska-Yukon border (longitude 141 degrees West) and Baillie Islands (longitude 127 degrees West), and from shoreline north to latitude 70 degrees 45 minutes North. A few of the flights and vessel movements, especially those for research projects, extended farther north. The major concentration of 1986 industrial activities was within and just north of the Mackenzie estuary (see Figure 1); however, for vessel movements, starting with the Sep. 11-20 time interval, there were frequent trips to the southeastern and western portions of the study area. Water depths at most of the active sites ranged from 5 to 35 m.

The most important factor affecting the level of industrial activities in the Beaufort Sea region in 1986 was the low world price for a barrel of oil (as low as \$10 US). Oil companies responded to this low price by cutting back on

exploration in some frontier areas where production and delivery of oil would be more expensive, such as the Beaufort Sea. This cut-back affected not only the level of activities within the drilling season but also the length of the season.

The 1986 industrial activities are summarized in greater detail in the following sections, by type, i.e., seismic and sounding activities, site-specific activities, vessel activities, aircraft activities and research activities.

4.1 Seismic and Sounding Activities

Both seismic and sounding activities occurred within the Beaufort Sea region in 1986. Seismic activity was conducted by only one vessel, the "GSI Explorer", which operated in the vicinity of Amauligak I-65 from August 11 to 27 and at Issungnak on August 28. Additional details regarding the seismic activities, such as area surveyed, were not available. The first sounding survey occurred on July 22 and the last one, on September 06. Sounding activities were most intense during the July 22-31 time period (see Section 5.1). A total of six grids (spot locations) and two lines were shot. Most of the locations were surveyed once; however, Kaubvik was surveyed on 11 occasions, Minuk on six, and Arnak on two. Sounding surveys were conducted using three vessels, the "Immerk", the "Marjory" and the "Nanabush".

All of the seismic and most of the sounding activities occurred within or just north of the Mackenzie estuary (see Figure 1 and Section 5.1); one sounding location, Angasak, was at the tip of the Tuktoyaktuk Peninsula.

4.2 Site-specific Activities

Site-specific activities include dredging, island/berm construction, island drilling, drilling from a drillship, and other (e.g., island maintenance and clean-up, and setting up and dismantling a rig). The removing of bottom sediment (dredging) and the depositing of bottom sediment (island/berm construction) are site-specific activities and are described in this section; the movements of dredges and barges in transporting the fill are vessel movements and are included in Section 4.3. The movements of drillships from one drilling location to the next are also included in vessel movements. Locations where site-specific activities occurred are shown on the vessel activity and aircraft activity maps (see Section 5.2 and Section 5.3).

Two trailing suction hopper dredges (the "Geopotes X" and the "W.D. Gateway") were active in the Beaufort Sea region in 1986. The "Geopotes X" did a sub-cut (in preparation for constructing a new berm) at Amauligak F-24. The "W.D. Gateway" built a caisson-retained island at Kaubvik (with fill taken from

two sites, Issigak and Nipterk) and dredged on-site at Arnak and Kaubvik. Dredging activity in the study area commenced on July 20 and continued until September 11. There was no further dredging in September and only on two additional days in October.

One drillship (the "Explorer I"), two mobile drilling platforms (the "Molikpaq" and the "Kulluk") and two land drilling rigs (Rig 3 and Rig 32) operated in the study area in 1986. The "Explorer I" was on-site at Havik from July 20 to August 24. The "Molikpaq" was at Amauligak I-65 from before June 01 to September 28 and the "Kulluk" was at Aagnerk from June 16 to August 07 and at Kringalak from August 08 to 29. Drilling from islands using land rigs occurred throughout the June 01 to December 31 study period. Drilling occurred at Arnak from before June 01 to August 12 and at Kaubvik from October 22 until after December 31. Although Rig 20 was at the Hanson location, there was no drilling there during the June 01 to December 31 study period.

4.3 Vessel Activities

The 39 vessels that operated within the Beaufort Sea study area during 1986 included: two dredges, one drillship, four icebreakers, one tanker, one seismic vessel, and 30 supply vessels. Three of the supply vessels also conducted sounding surveys. Of these 39 vessels present in the region at the start of the June 01 to December 31 period, only 28 were likely still present at the end; there was some doubt concerning the eventual location of three of the vessels. Six vessels (the "Arctic Hooper", the "Arctic Taglu", the "Gulf Beaufort", the "Kigoriak", the "Supplier VIII", and the "Tugger 2") are known to have left the Canadian Beaufort at least as far as the Alaskan Beaufort, and five vessels overwintered outside the study area, in Summers Harbour (near Cape Parry).

A total of 955 vessel trips were logged during the June 01 -December 31, 1986 study period (see Appendix A-2). The level of vessel activity was low in June (18 trips), greater in July than in June, and greater in August than in July; however, after August, the level of activity started to decline. There were only 76 vessel trips in October and none in November or December.

During the June and July time periods, most of the vessel movements were from over-wintering sites in Herschel Basin and Tuktoyaktuk to offshore locations (see maps in Section 5.2). These movements were associated with the start-up of island/construction and drilling activities and were concentrated within and just north of the Mackenzie estuary. Some small-scale movements were associated with ice avoidance and/or breaking of ice during ice patrols. There were a few vessel trips to Alaska in support of "Explorer II", which was working in Alaskan waters.

In early and mid-August most of the vessel activity was still concentrated within and just north of the Mackenzie estuary but there were more trips to the eastern and western portions of the study area than during earlier periods. Starting in late August and continuing through October, vessel activities did not concentrate within the estuary, rather most extended from Tuktoyaktuk to the eastern and western portions of the study area and beyond. In October, most of the vessel movements were to the east, out of the study area, to Summers Harbour.

4.4 Aircraft Activities

Eleven aircraft are known to have been associated with 1986 industrial activities in the Beaufort Sea region. Included were: eight helicopters (three Bell 212's, four Sikorsky 61's and one Sikorsky 76), two fixed-wing aircraft (Twin Otter) and one unknown aircraft. Other Bell 212's and Twin Otters may have supported oil and gas exploration in 1986. Only Twin Otters were used for research flights.

There was a total of 3583 aircraft trips in the study area during the June 01 to December 31, 1986 period. According to the monthly totals, the level of aircraft activities steadily declined from 958 trips in June to 97 trips in December (see Appendix A-3); however, during late July there were more trips than during either early or mid-July and during mid-September there were more flights than during early September.

Aircraft activities were concentrated within and just north of the Mackenzie estuary from June through October. The most frequent flights were between Tuktoyaktuk and drilling rig sites, or between drilling rig sites, or, in June, between Tuktoyaktuk and other overwintering sites. In November and December, almost all flights were between Inuvik and the only active offshore drilling rig site, Kaubvik. Throughout the June 01 to December 31 period, there were generally more flights to sites with active drilling rigs than to sites where the drilling rig was inactive or being set up or being dismantled. The aircraft trips between Tuktoyaktuk and one of the most important overwintering sites for 1986-87, Summers Harbour, were not recorded in our database because the flight path between these two sites is over land within the study area.

4.5 Research Activities

Seven research projects were identified during the 1986 study period; five of which were concerned with marine mammals and two, physical/chemical oceanography studies. Four projects utilized aircraft, and four, vessels. All of the flight lines and vessel movements undertaken for these research projects have been mapped in Section 5.4.

The first 1986 research project started in mid-July; it was a photographic aerial survey conducted for the Department of Fisheries and Oceans that had also been conducted in 1985. However, although the same survey lines were flown in both years, all flights were at altitudes above 600 m, and hence the data have only been included in the 1986 database, i.e. the flight altitude criteria for data inclusion was less than 600 m in 1985, and was extended to less than 1000 m in 1986.

In late August and early September 1986, three research projects on bowheads were conducted for the Environmental Studies Revolving Funds, DIAND, and MMS (U.S. Department of Commerce). Two projects involved systematic aerial surveys, one project involved photographic reconnaissance aerial surveys, one involved reconnaissance aerial surveys, and one involved systematic vessel surveys. The reconnaissance photographic flights have not been mapped because information was not available on specific flight locations. The MMS project included one reconnaissance flight in October. A University of Alberta project on seals started at the same time as the bowhead projects and continued into October. The seal project involved systematic aerial surveys and reconnaissance vessel surveys.

The two oceanography projects required vessels to first deploy and later recover self-recording instruments. Deployment was in early August for one project and late August for the other. Recovery was a month later for both projects.

Research aircraft movements covered much of the study area south of latitude 70 degrees 30 minutes North from Herschel Island to Warren Point during middle and late July. One research vessel movement occurred in early August, and one research vessel movement and a few research aircraft movements in mid-August. In both late August and early September, research flights covered much of the study area south of latitude 70 degrees 45 minutes North. There were a few vessel movements north of the western end of the Tuktoyaktuk Peninsula in late August and much more vessel activity in the same area and also along the Yukon coast in early September. In mid- and late September, there were aircraft survey lines flown north and east of the eastern end of the Tuktoyaktuk Peninsula. In late September, there was also one research vessel movement. In October, one research reconnaissance flight was made along the Yukon coast from Shingle Point to and around Herschel Island.

4.6 Definition of the 1986 Main Industrial Zone

The boundary of the 1986 MIZ was defined as extending from Tuktoyaktuk to McKinley Bay to Amauligak F-24 to Amauligak I-65 to Kaubvik to Kringalak to Aagnerk to Herschel Basin to

latitude 69 degrees 29 minutes North, longitude 136 degrees 00 minutes West to Adgo to Tuktoyaktuk. (See Figure 2 in Section 6.1 for map of 1986 MIZ.)

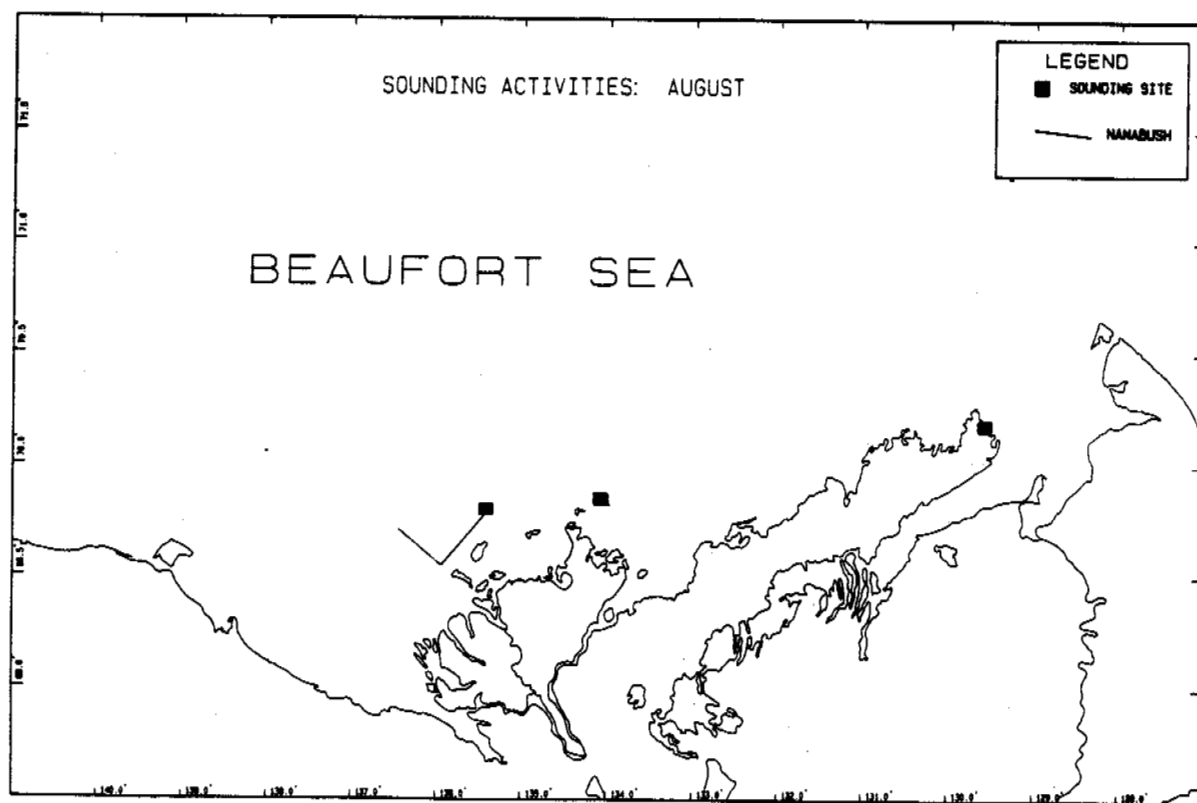
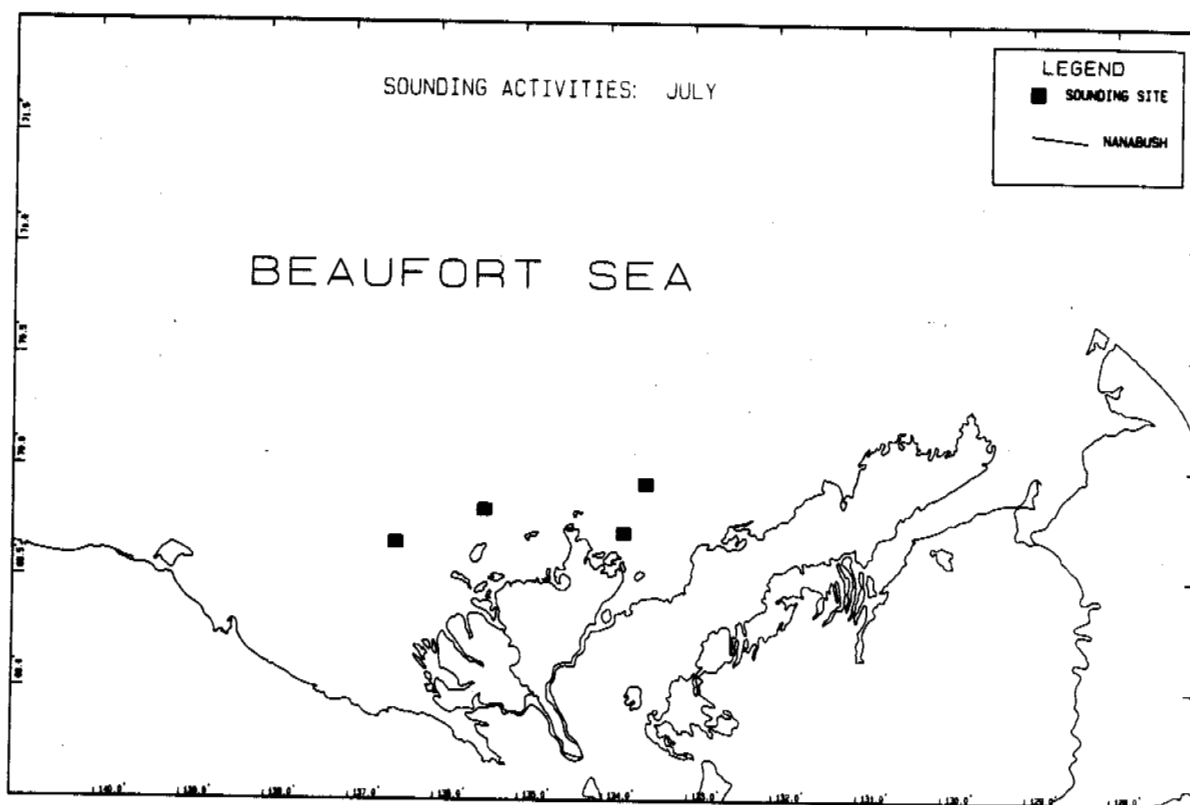
5.0 MAPS OF 1986 INDUSTRIAL ACTIVITIES

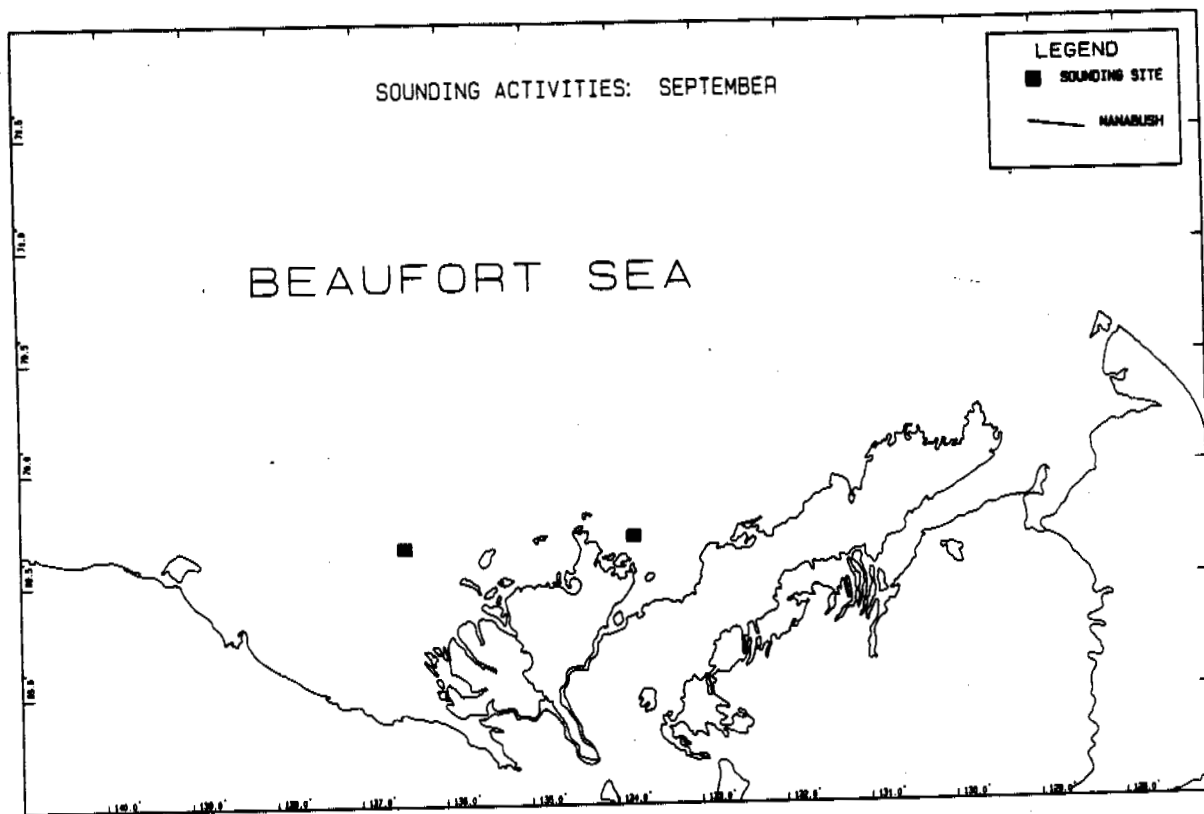
The computer-drawn maps are presented in the following sections by activity type and period. See Appendix A for the actual number of trips between specific locations. Both this section and Appendix A present information on activities in the following order: seismic and sounding activities, vessel activities, aircraft activities, and research activities. At the start of each section, a list is given of the time periods during which there were no activities of that type. No maps are provided for time periods with no activities.

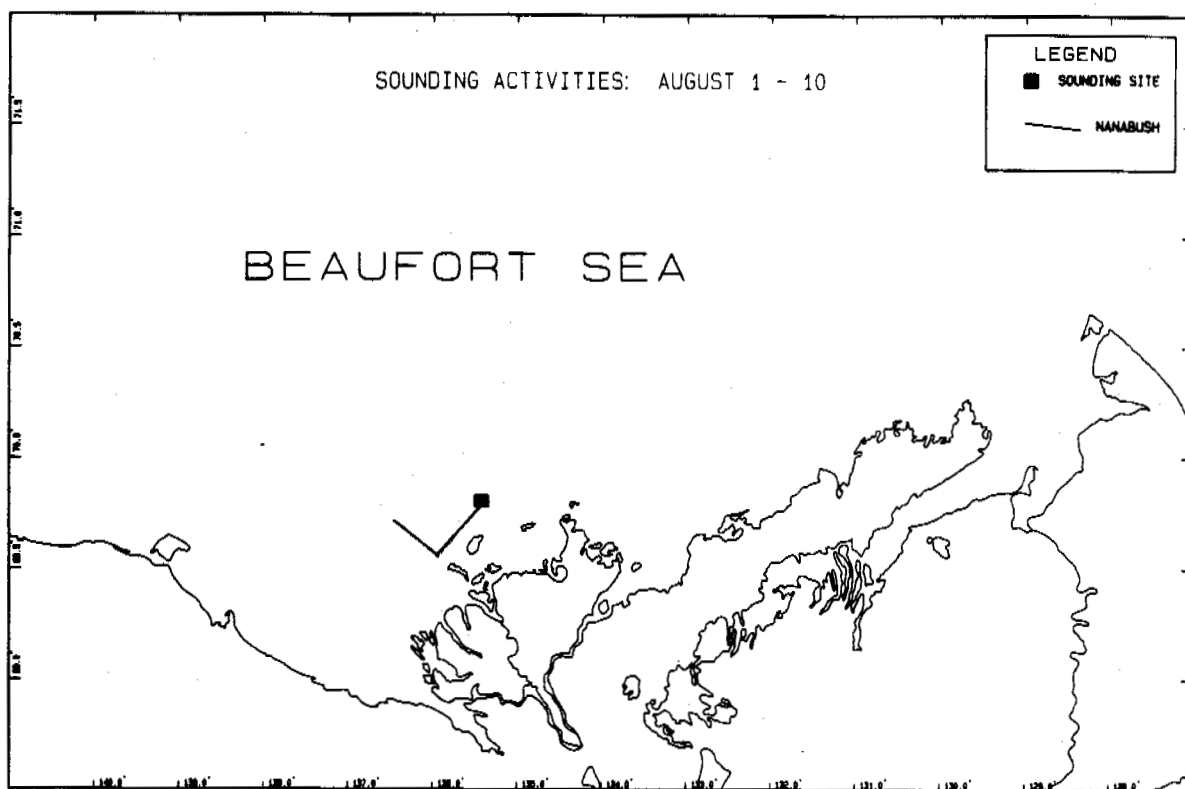
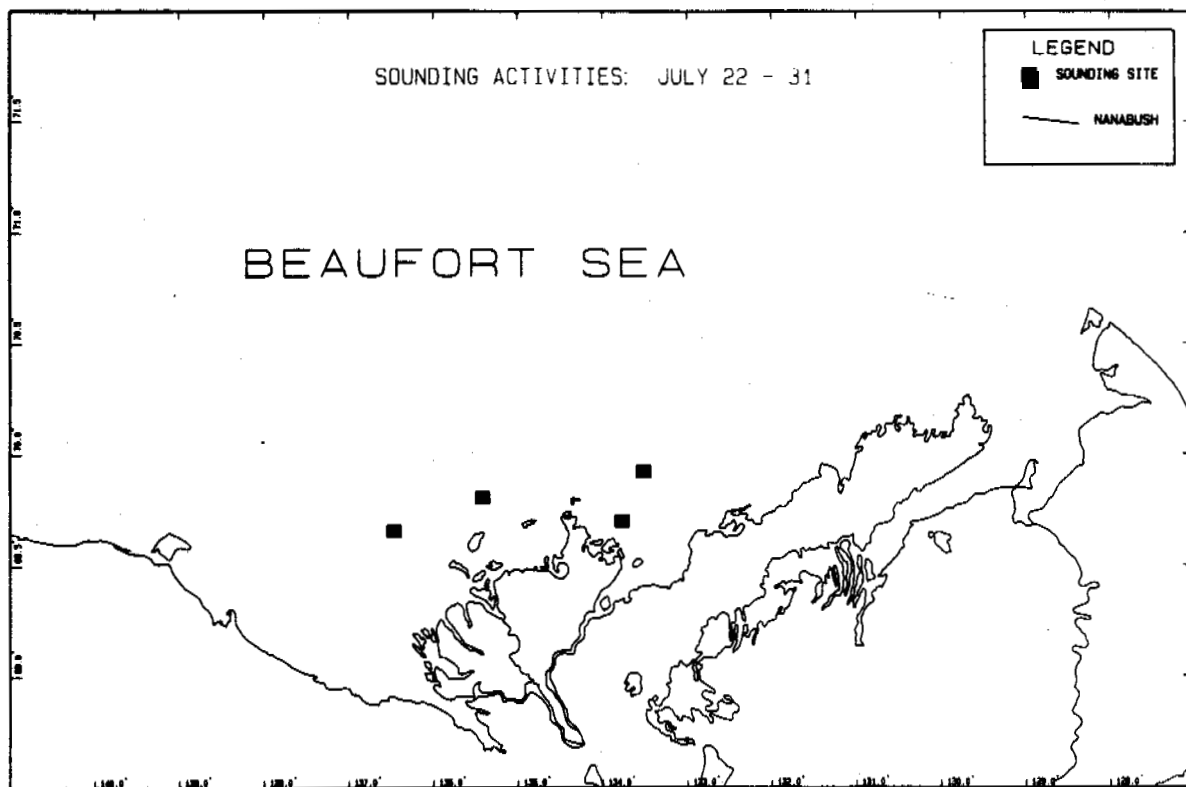
5.1 Seismic and Sounding Activities (1986)

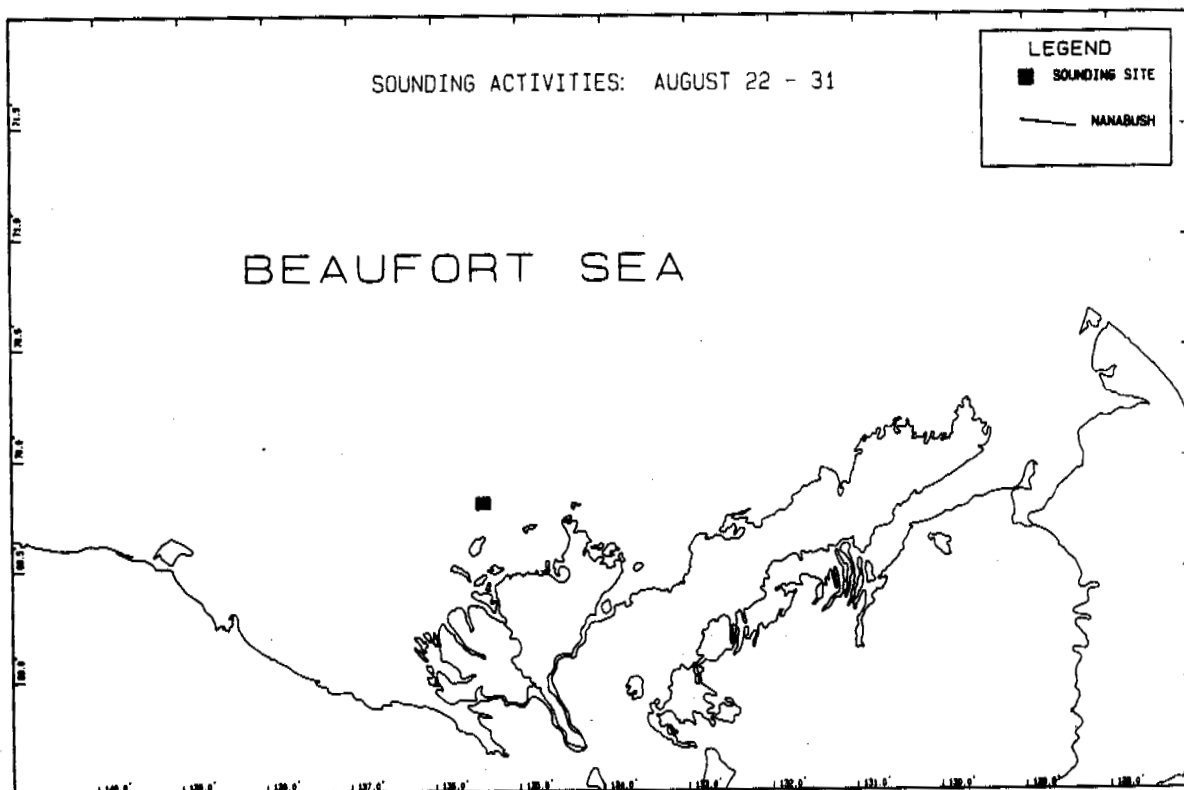
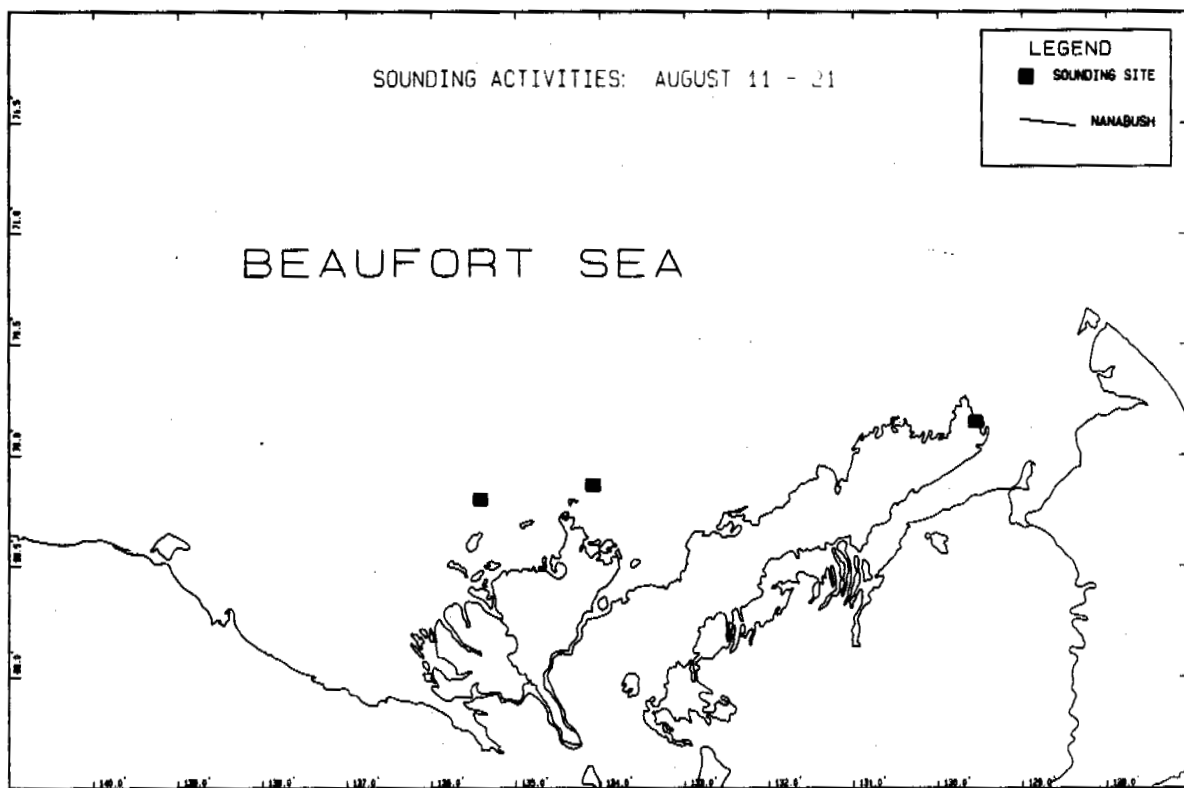
Note: Seismic - There was 1986 seismic activity from August 11 to 27 near Amauligak I-65 and on August 28 near Issungnak. However, detailed information regarding locations of these surveys was not provided by the geophysical company that conducted the survey in time for inclusion in this report.

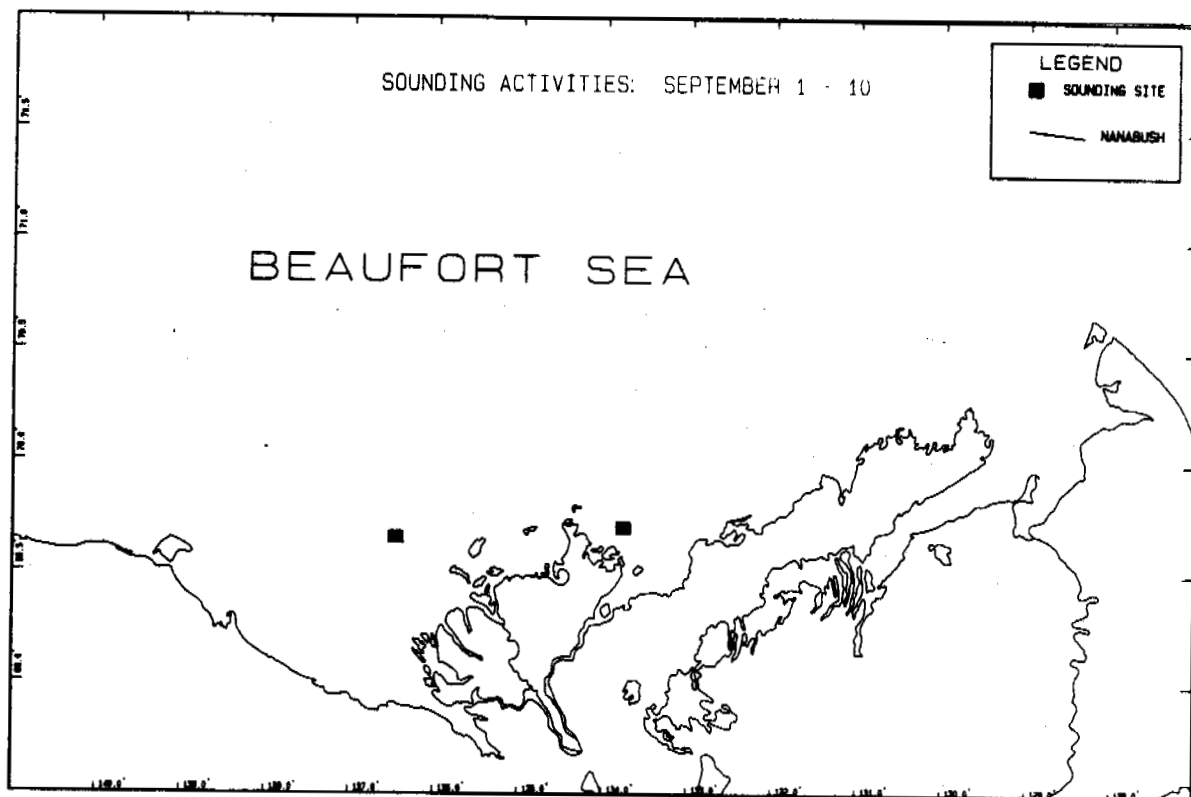
Sounding - There were no sounding activities for the 1986 reporting periods of June, July 1-10, July 11-21, September 11-20, September 21-30, October, November and December.





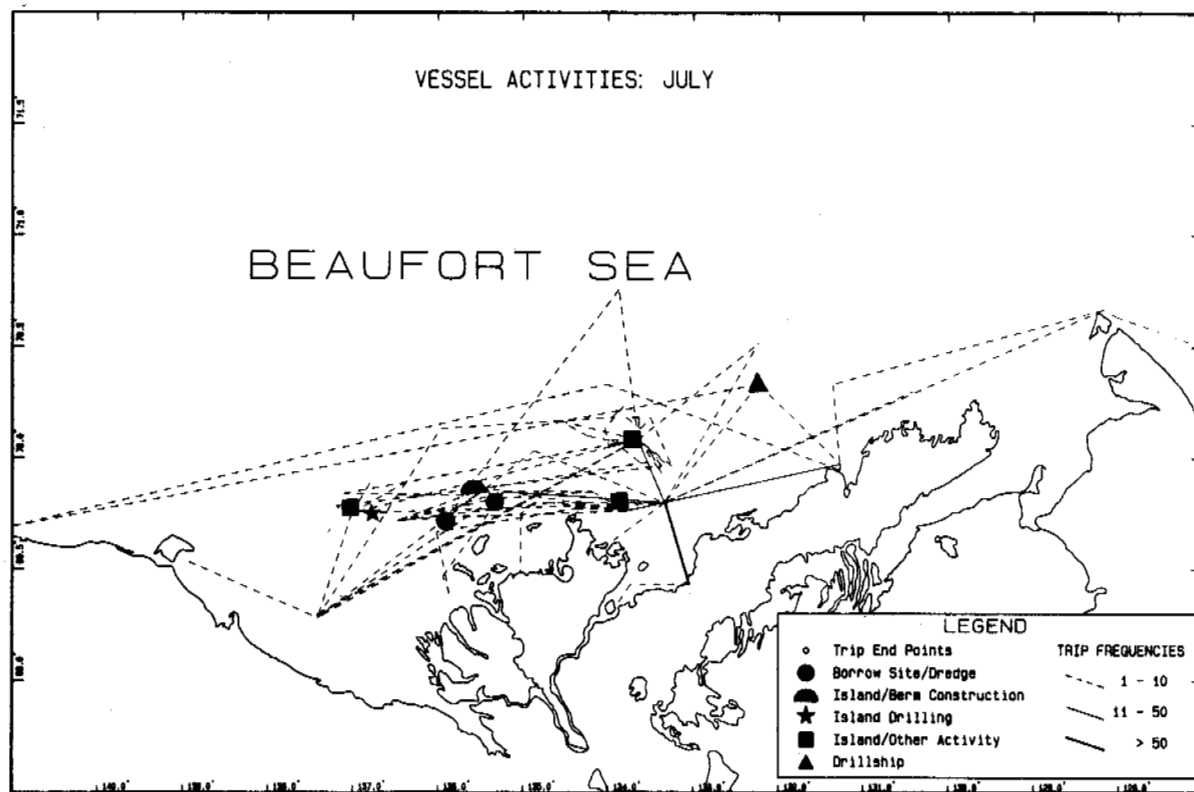
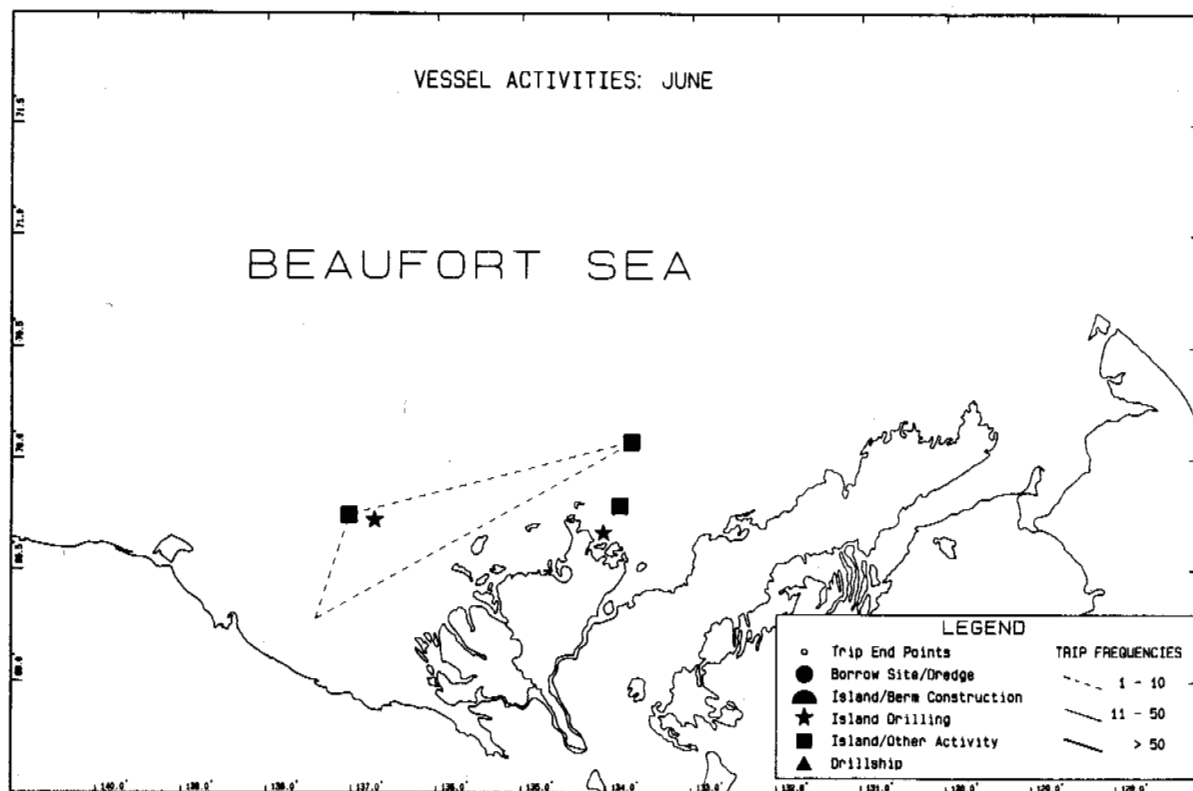


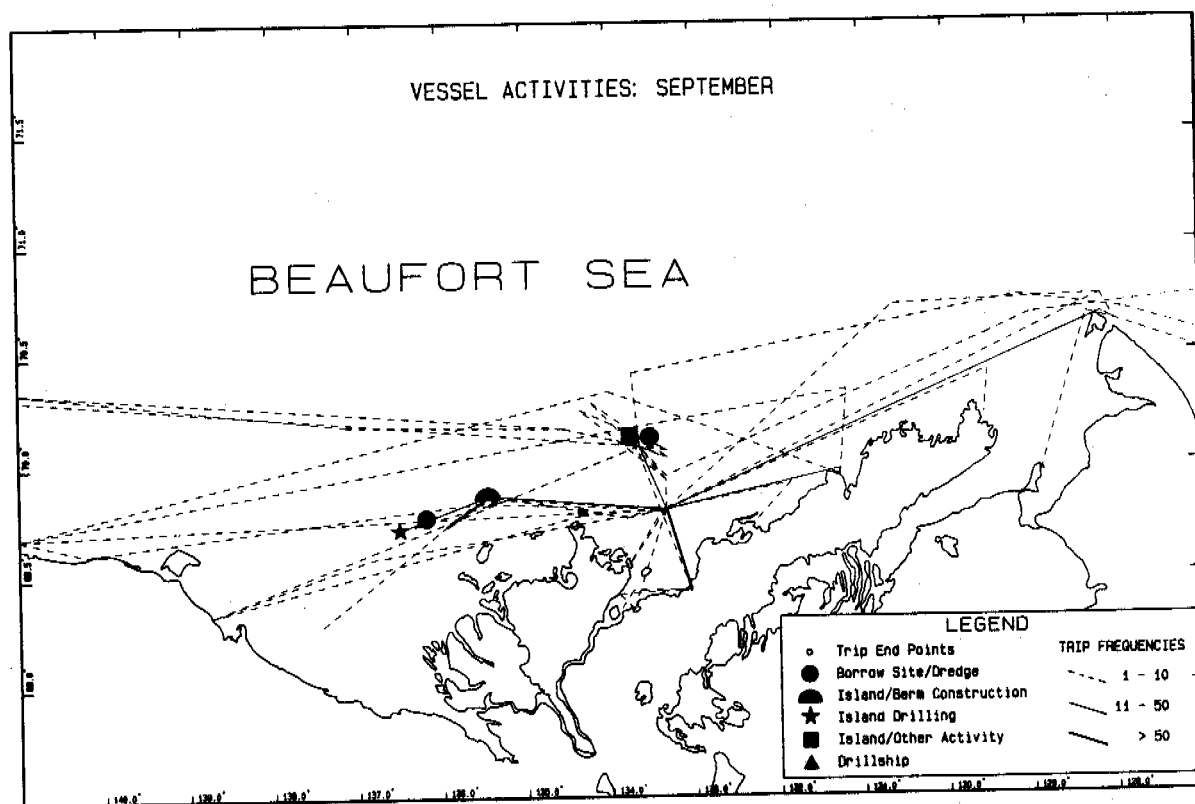
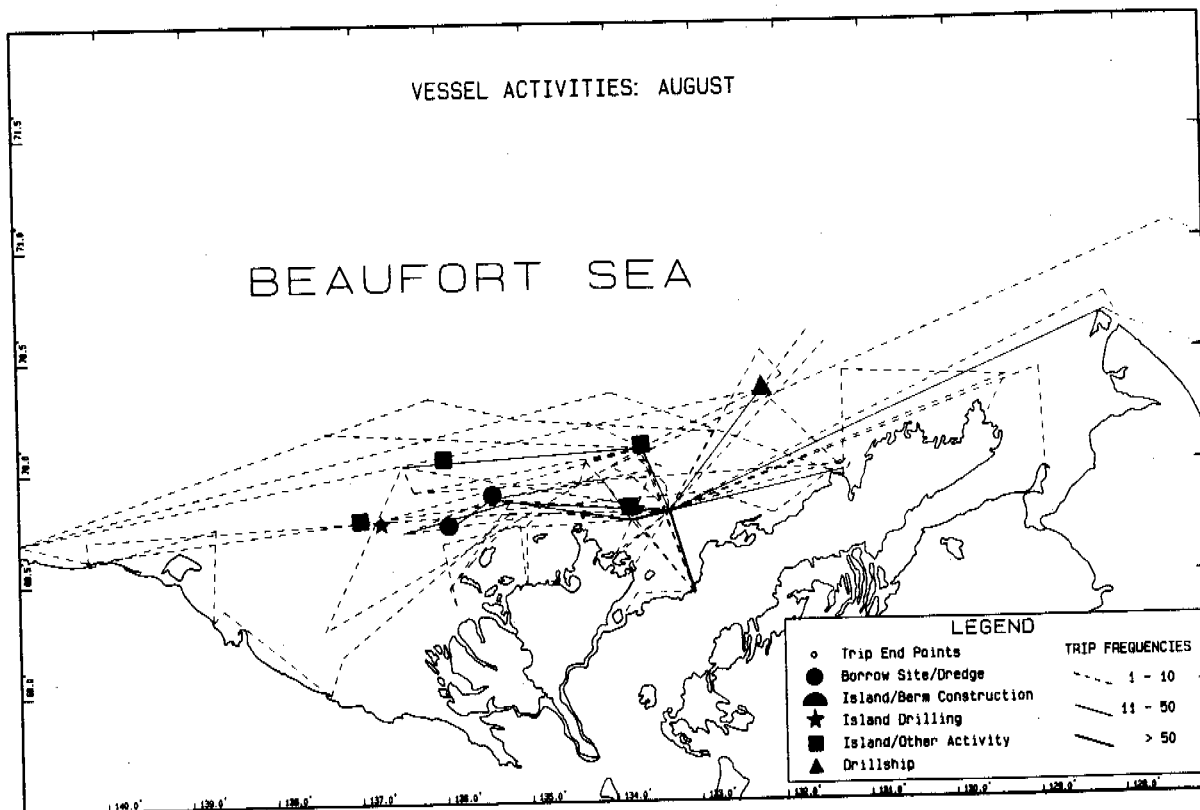




5.2 Vessel Activities (1986)

Note: There were no vessel activities for the 1986 reporting periods of November and December.





VESSEL ACTIVITIES: OCTOBER

BEAUFORT SEA

LEGEND

- Trip End Points
- Borrow Site/Dredge
- ⬤ Island/Berm Construction
- ★ Island Drilling
- Island/Other Activity
- ▲ Drillship

TRIP FREQUENCIES

- 1 - 10
- 11 - 50
- > 50

BEAUFORT SEA

LEGEND

- | LEGEND | | TRIP FREQUENCIES |
|--------|--------------------------|------------------|
| ○ | Trip End Points | |
| ● | Borrow Site/Dredge | 1 - 10 |
| ◐ | Island/Berm Construction | 11 - 50 |
| ★ | Island Drilling | |
| ■ | Island/Other Activity | > 50 |
| ▲ | Drillship | |

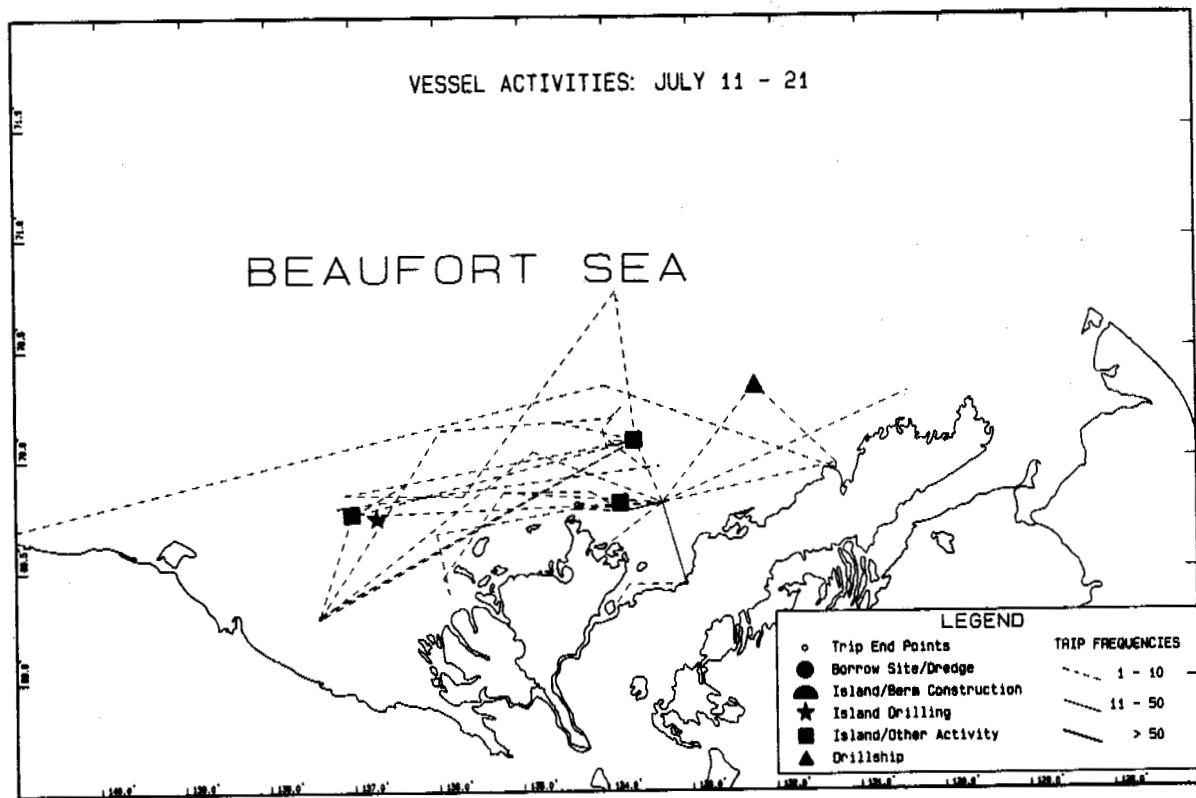
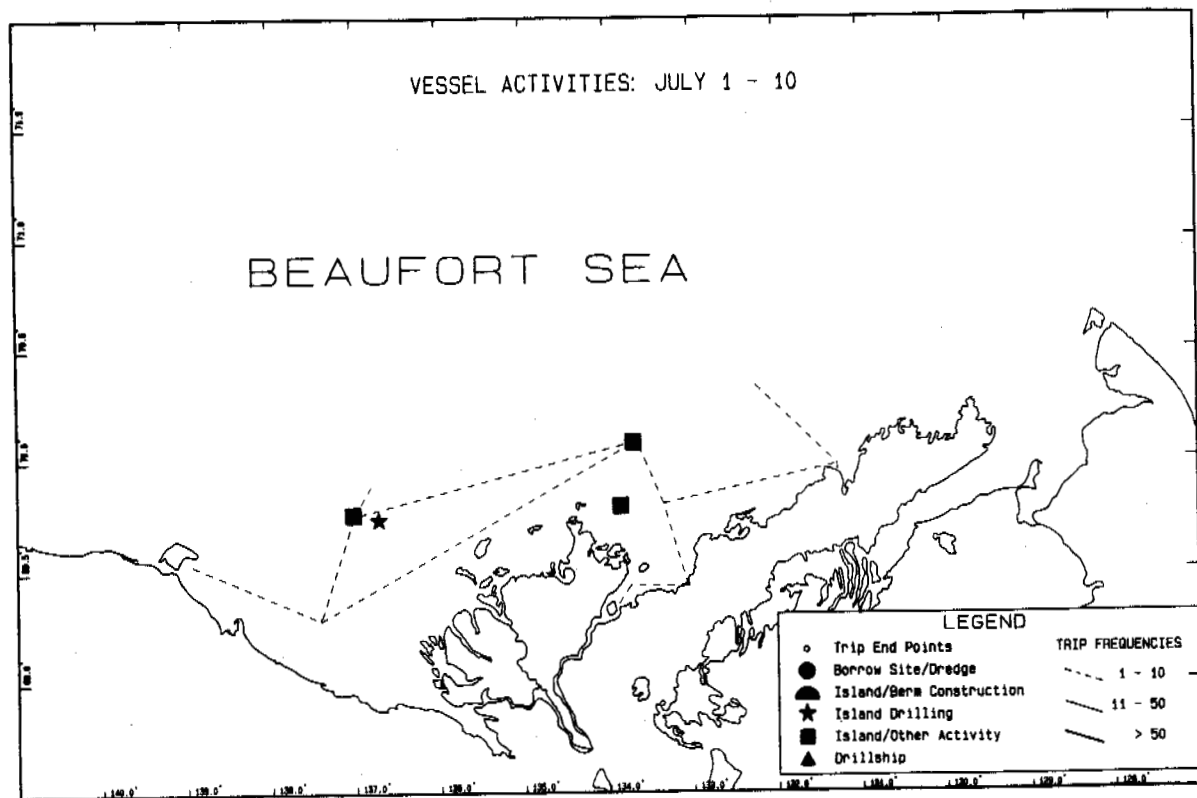
TRIP FREQUENCIES

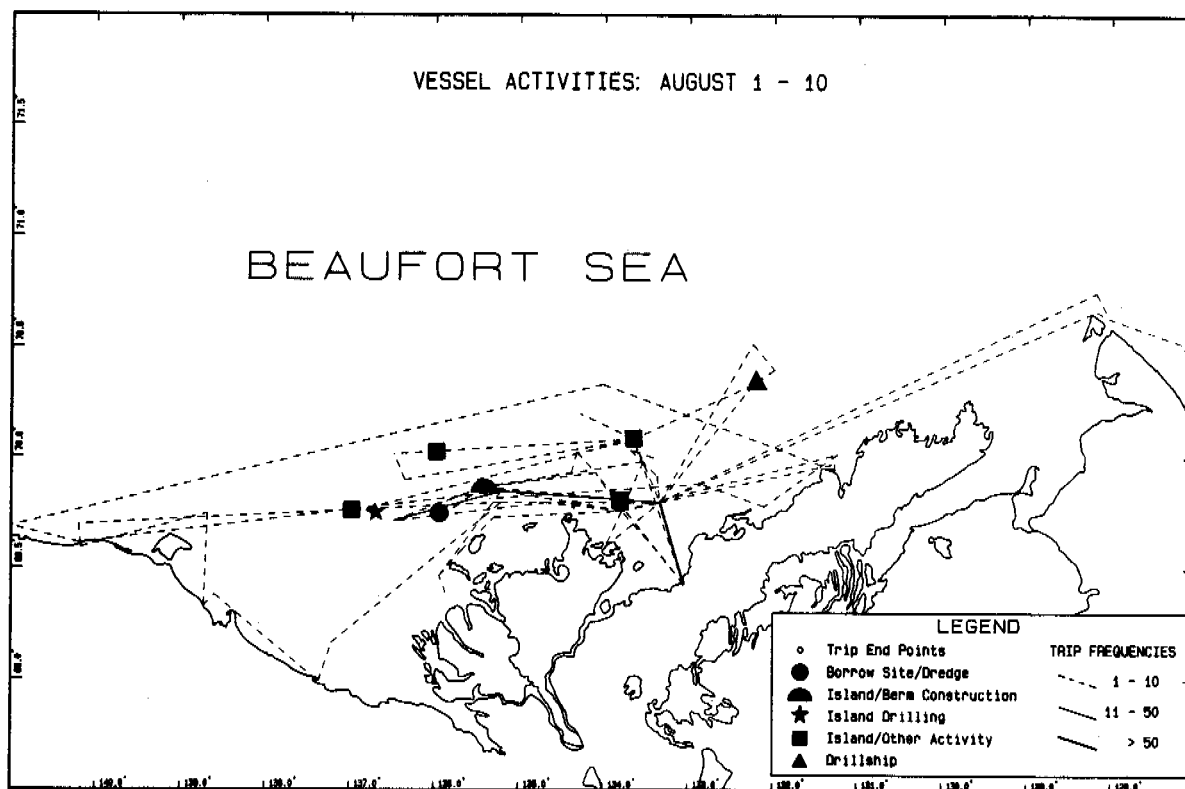
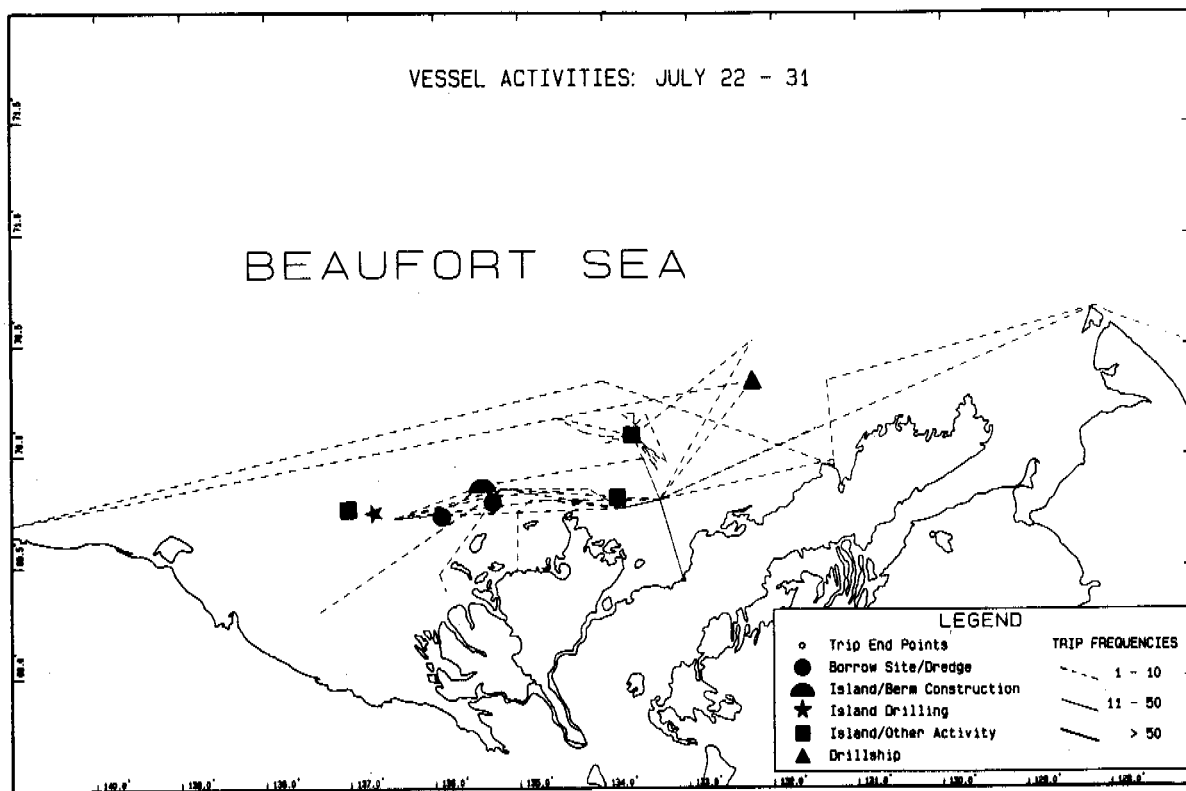
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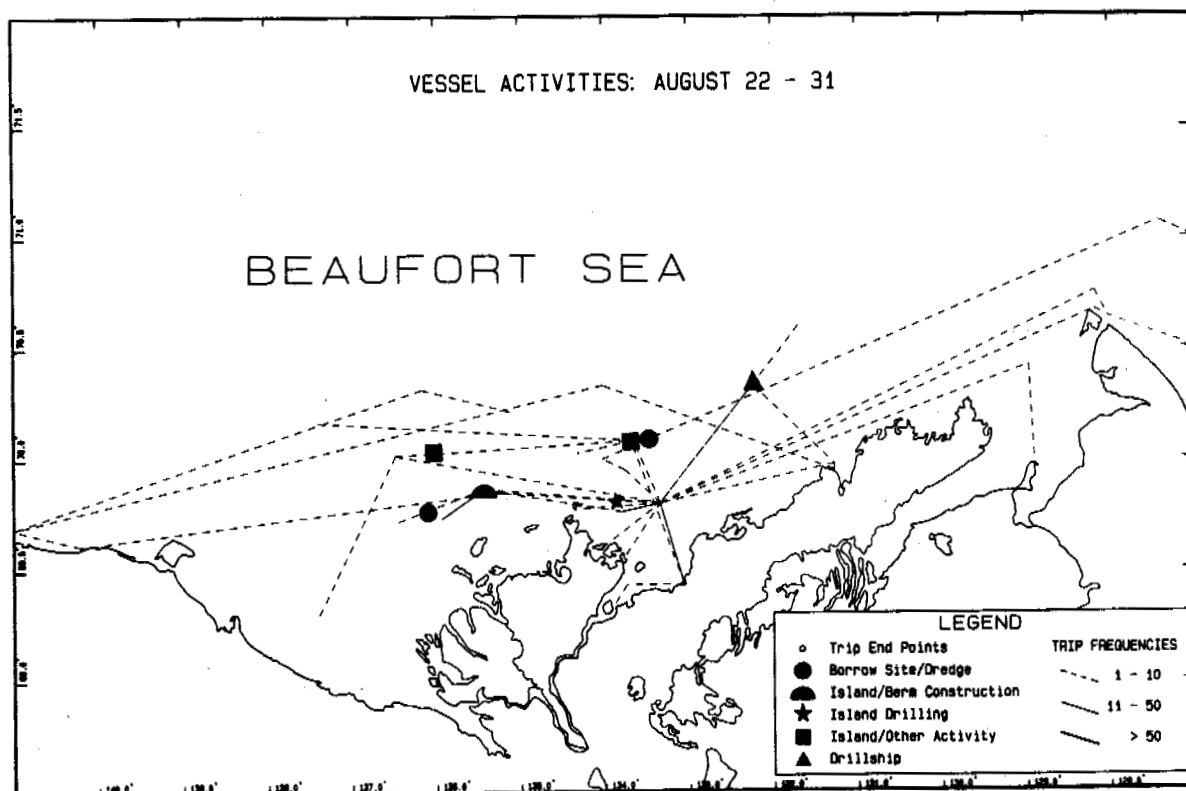
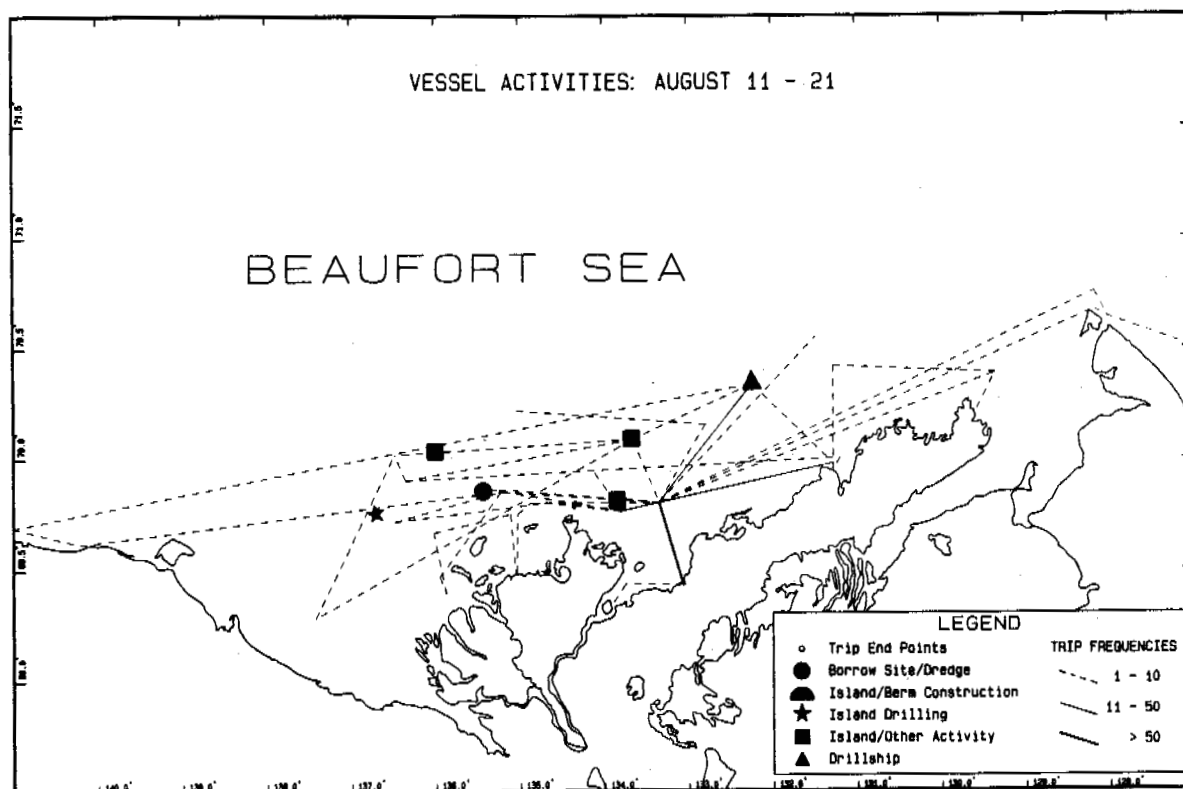
44-50

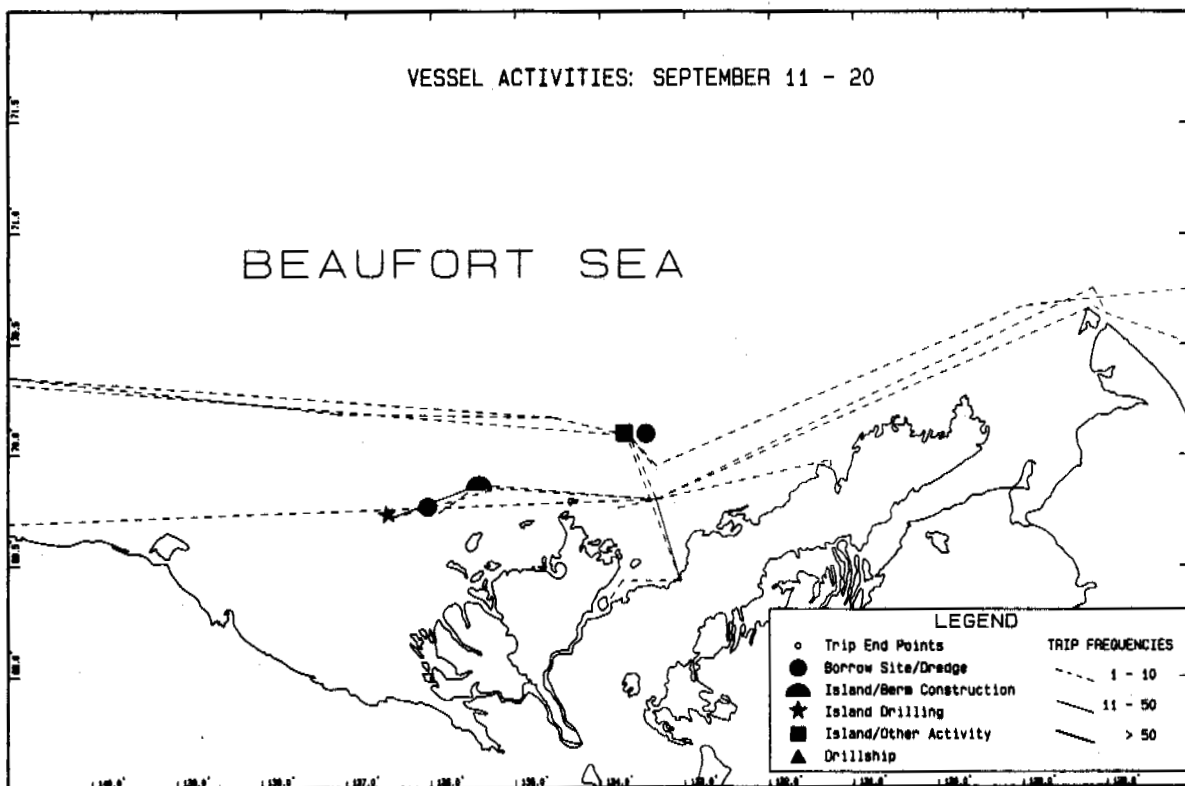
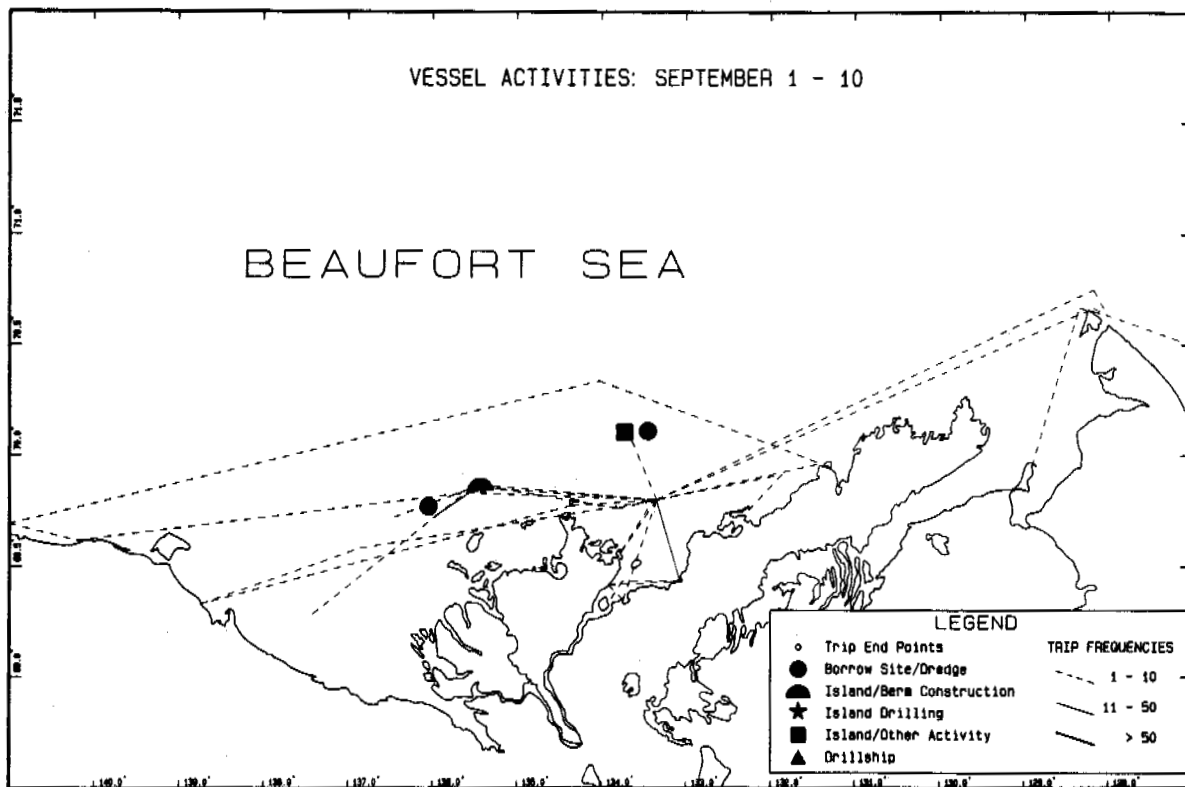
11 99

50



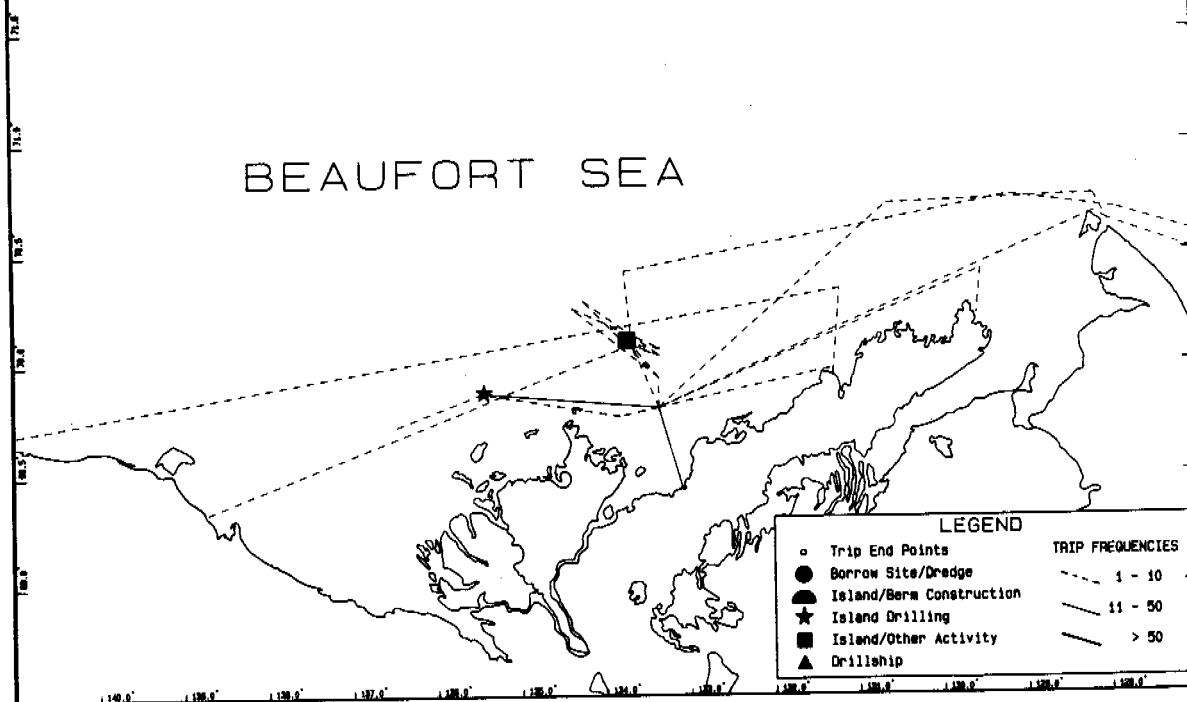






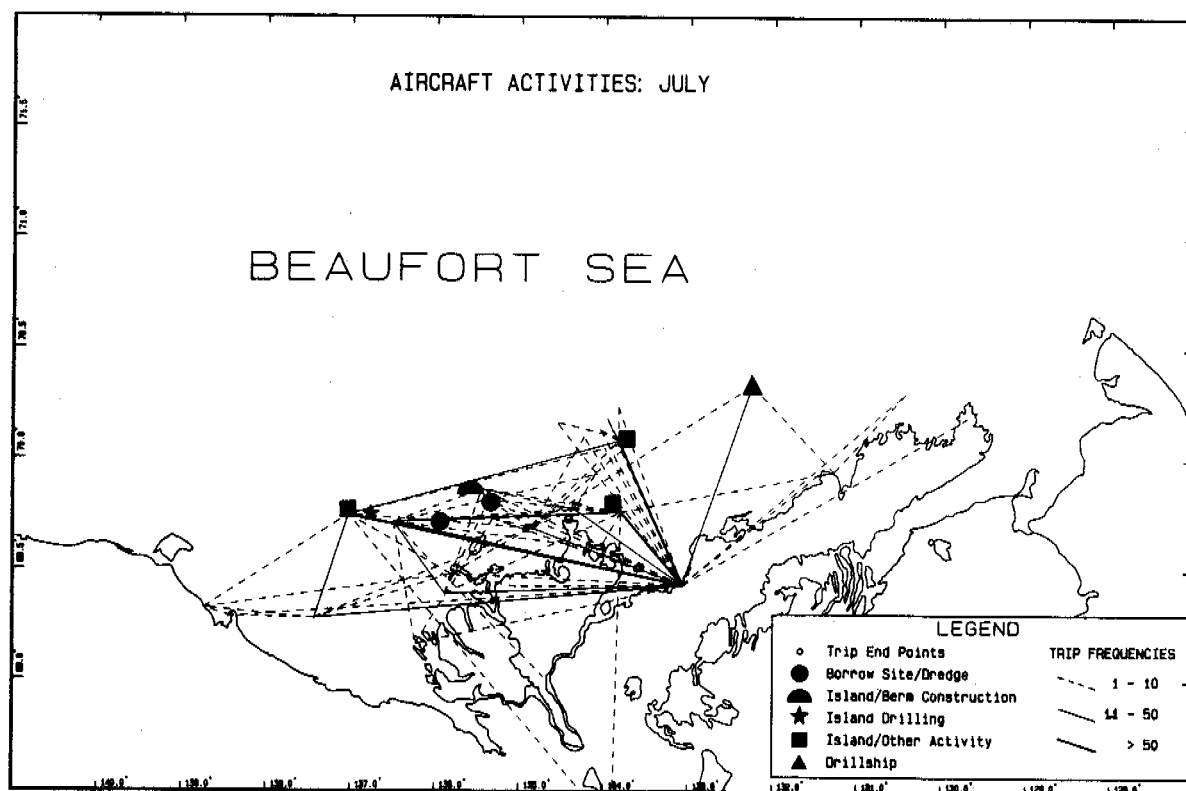
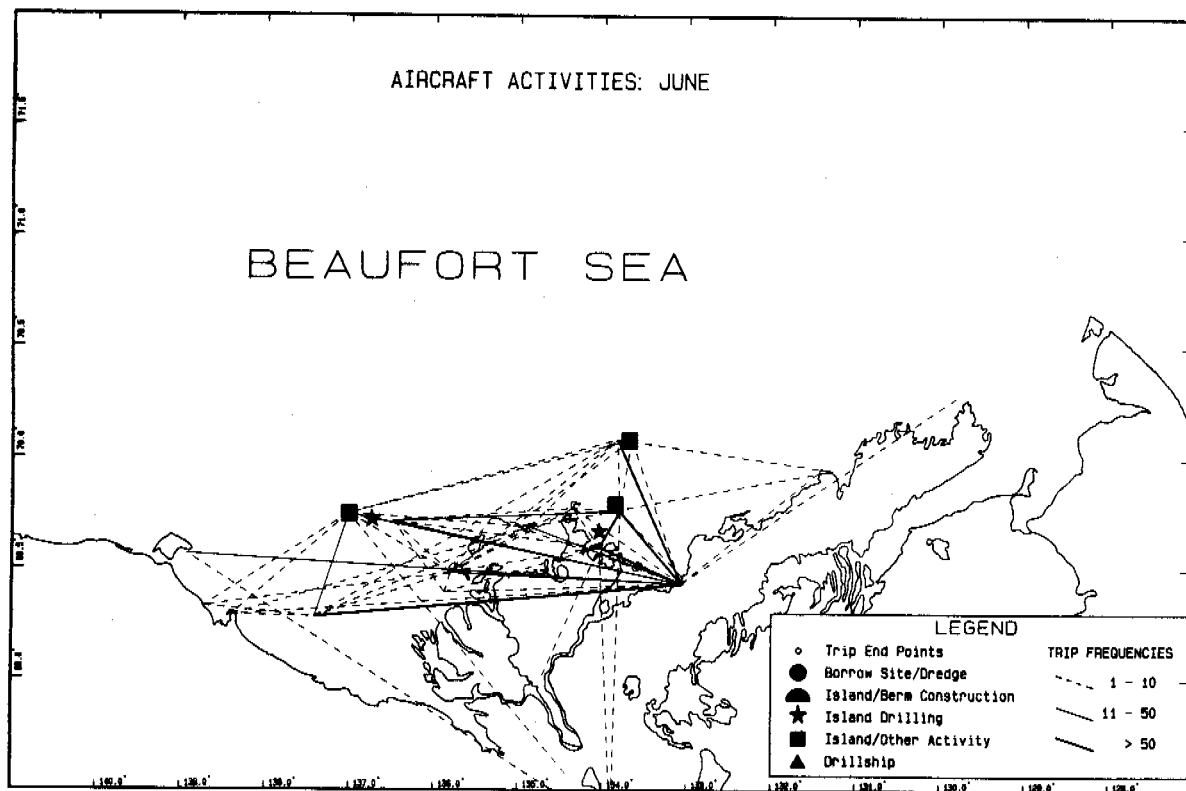
VESSEL ACTIVITIES: SEPTEMBER 21 - 30

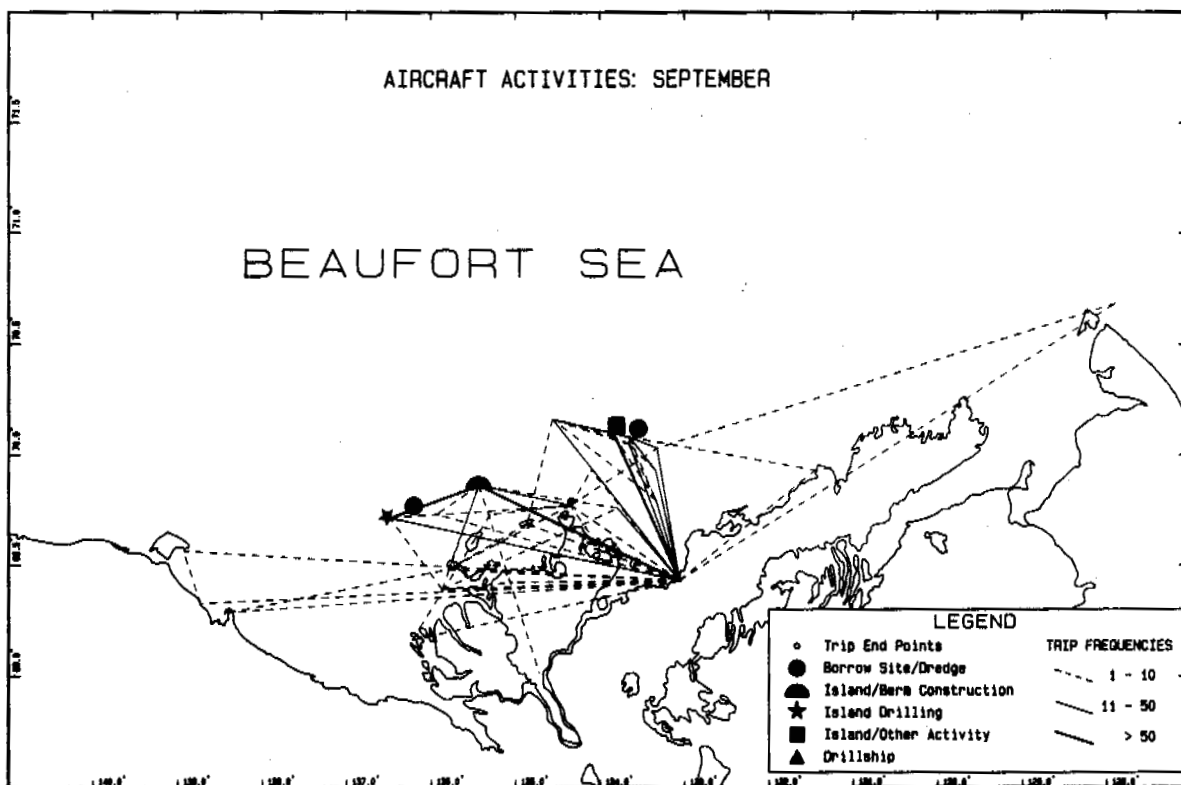
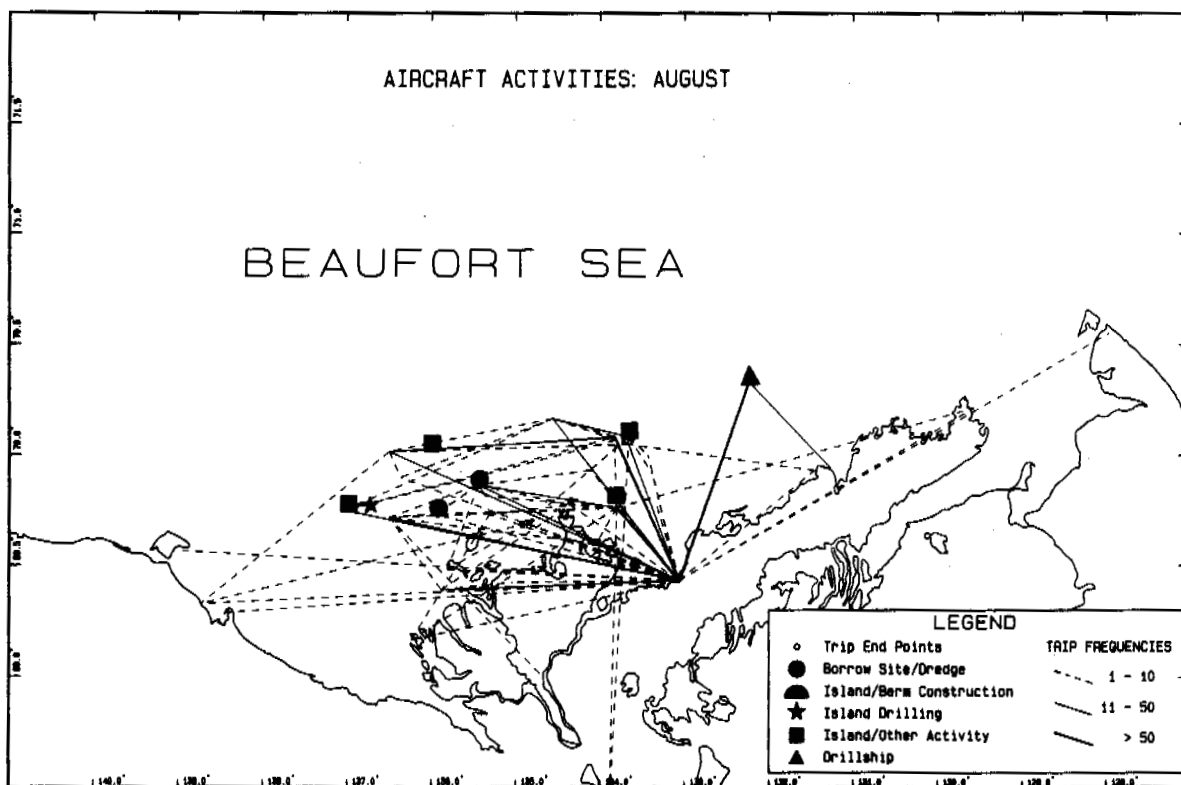
BEAUFORT SEA

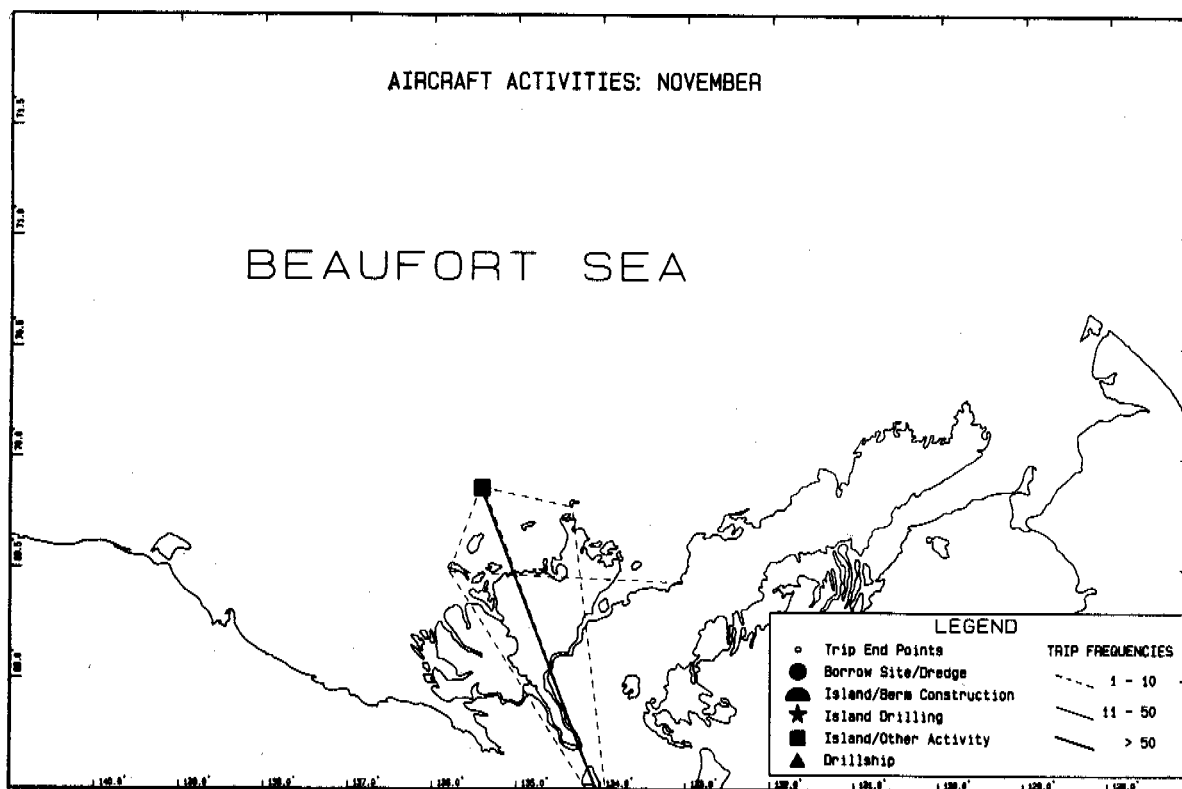
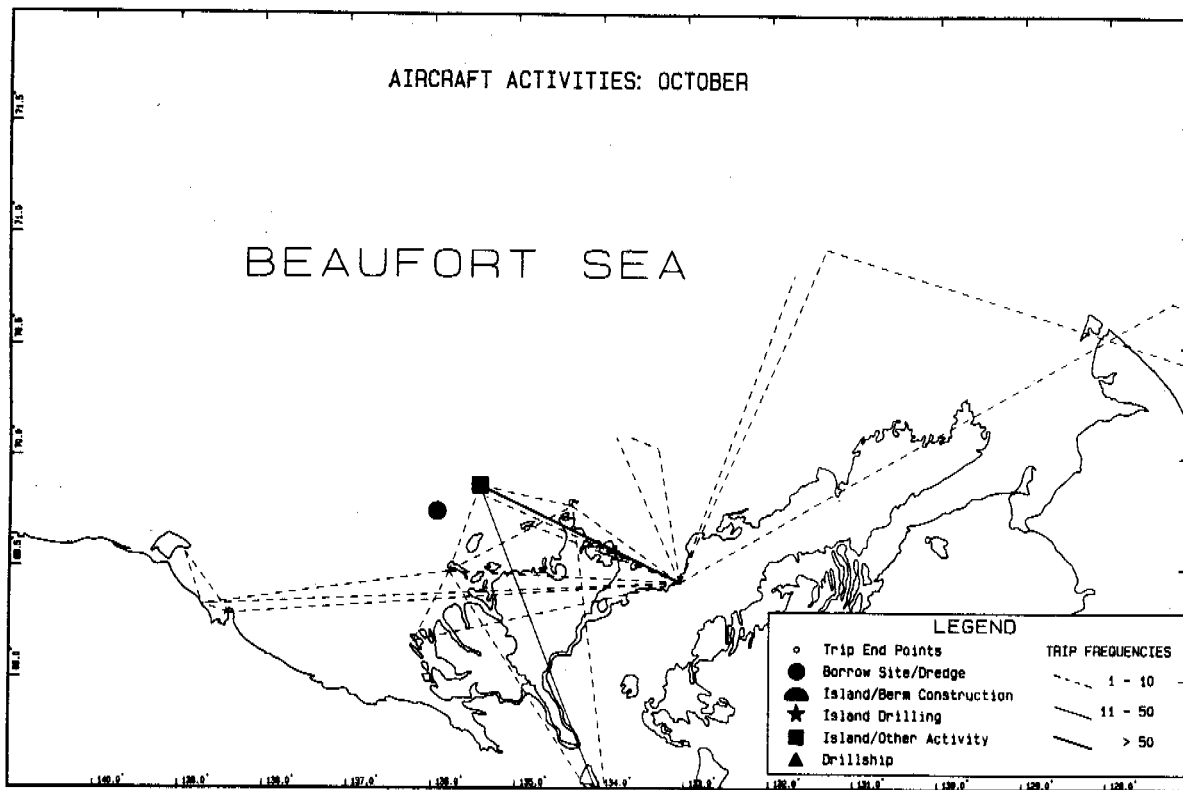


5.3 Aircraft Activities (1986)

Note: There were aircraft activities for all 1986 reporting periods.

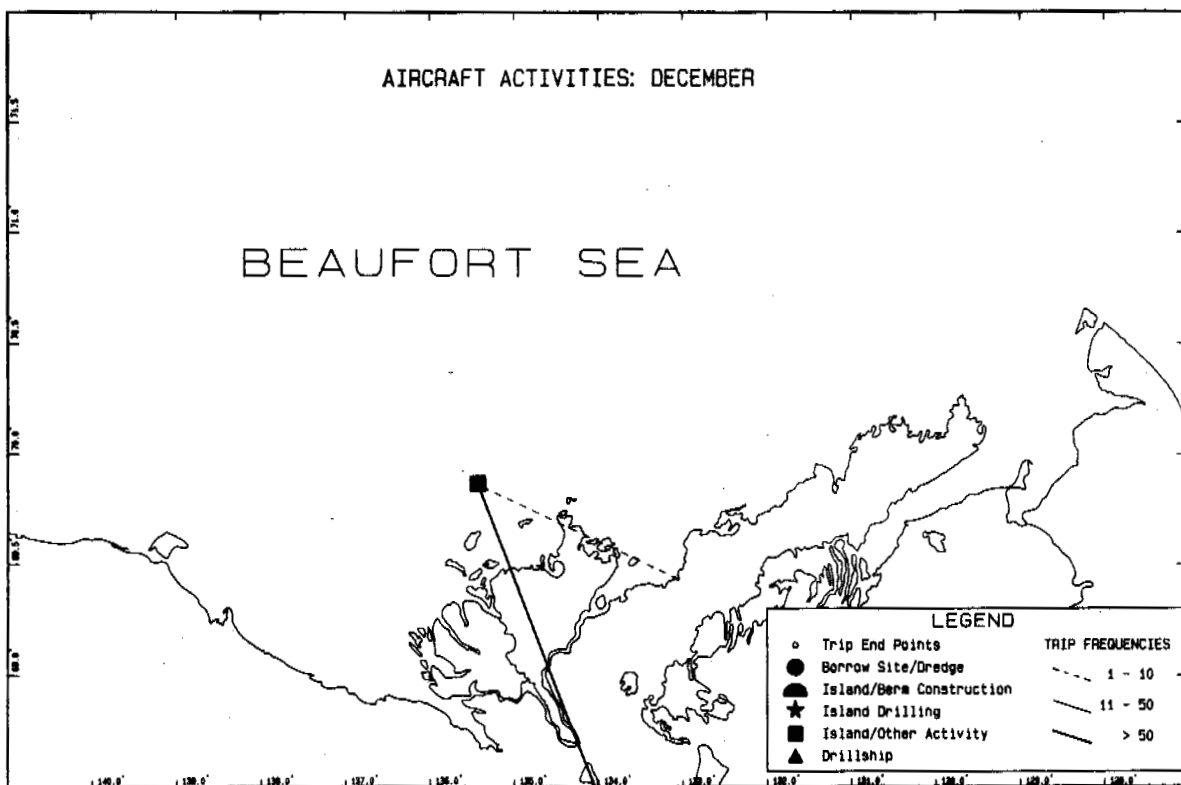


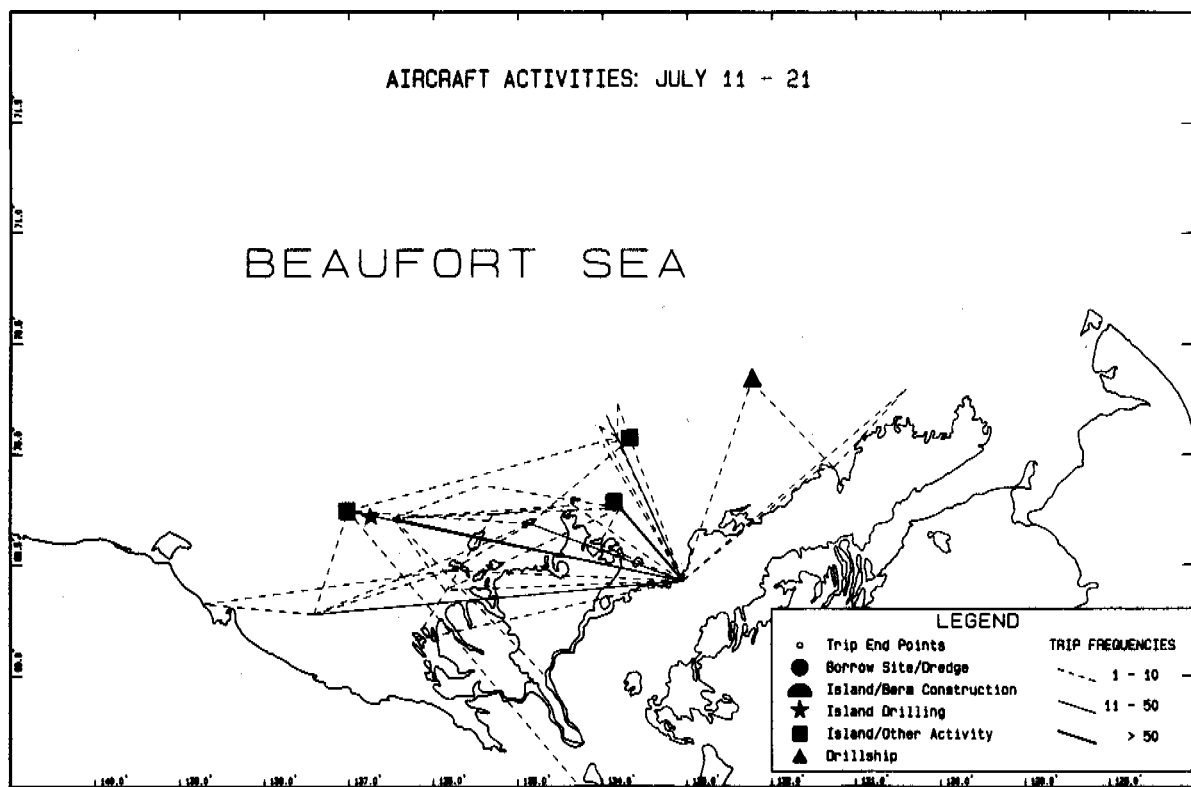
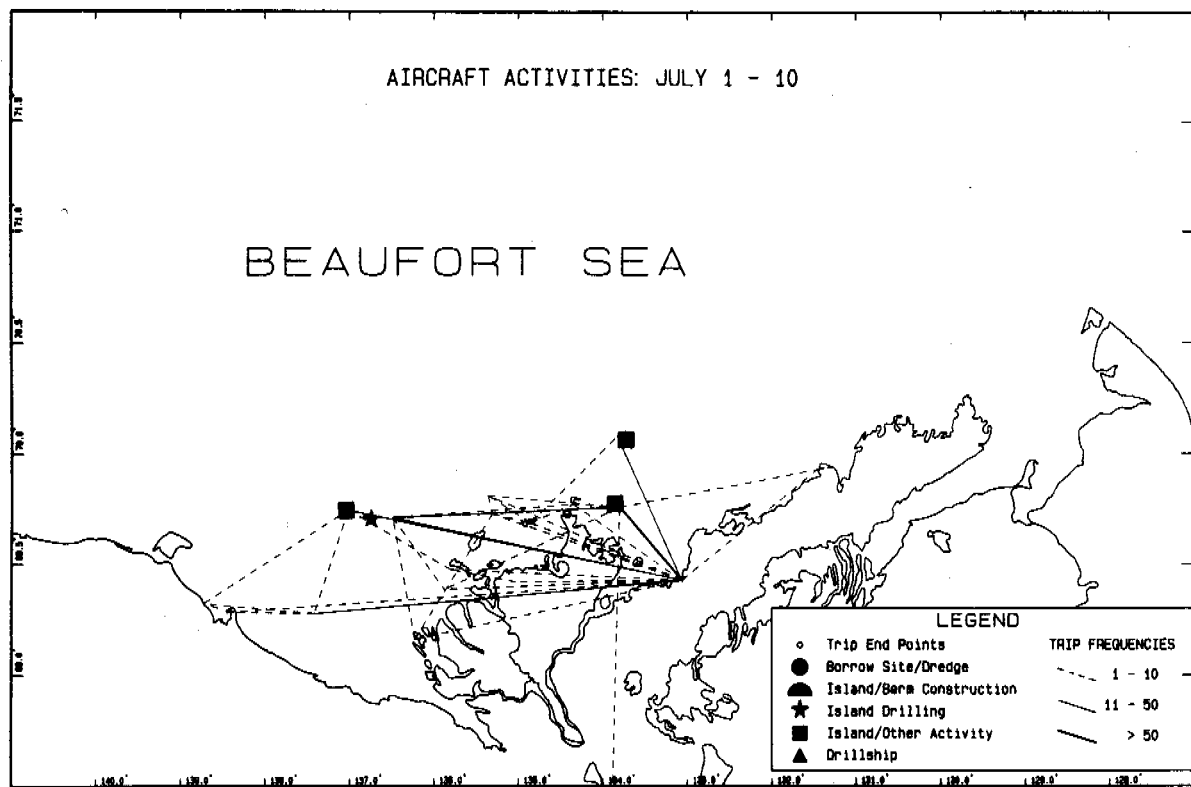


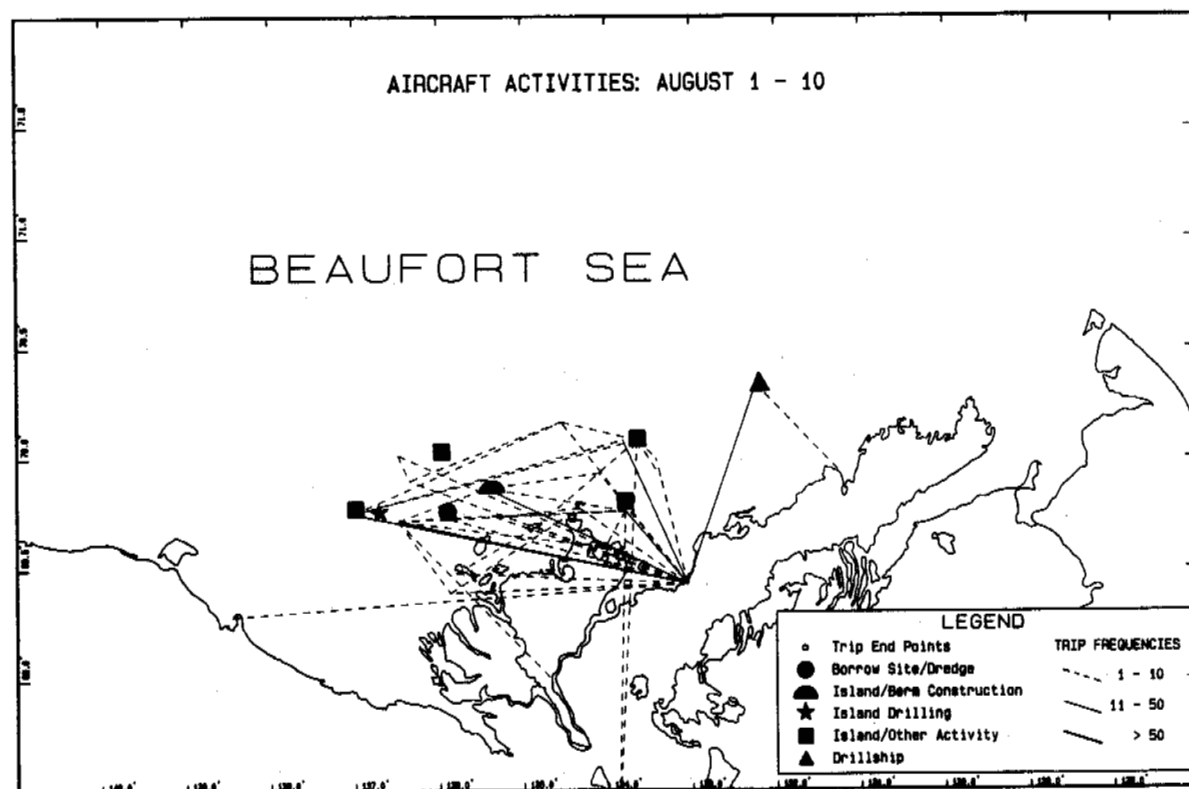
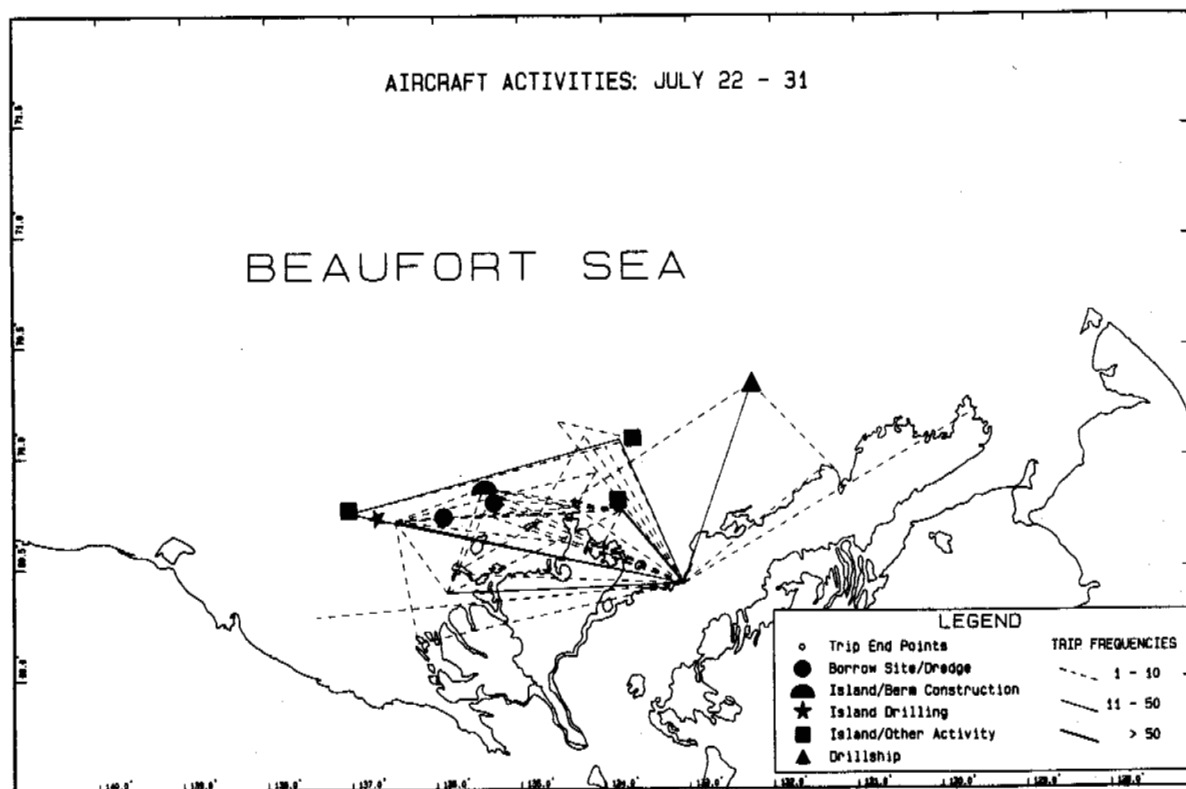


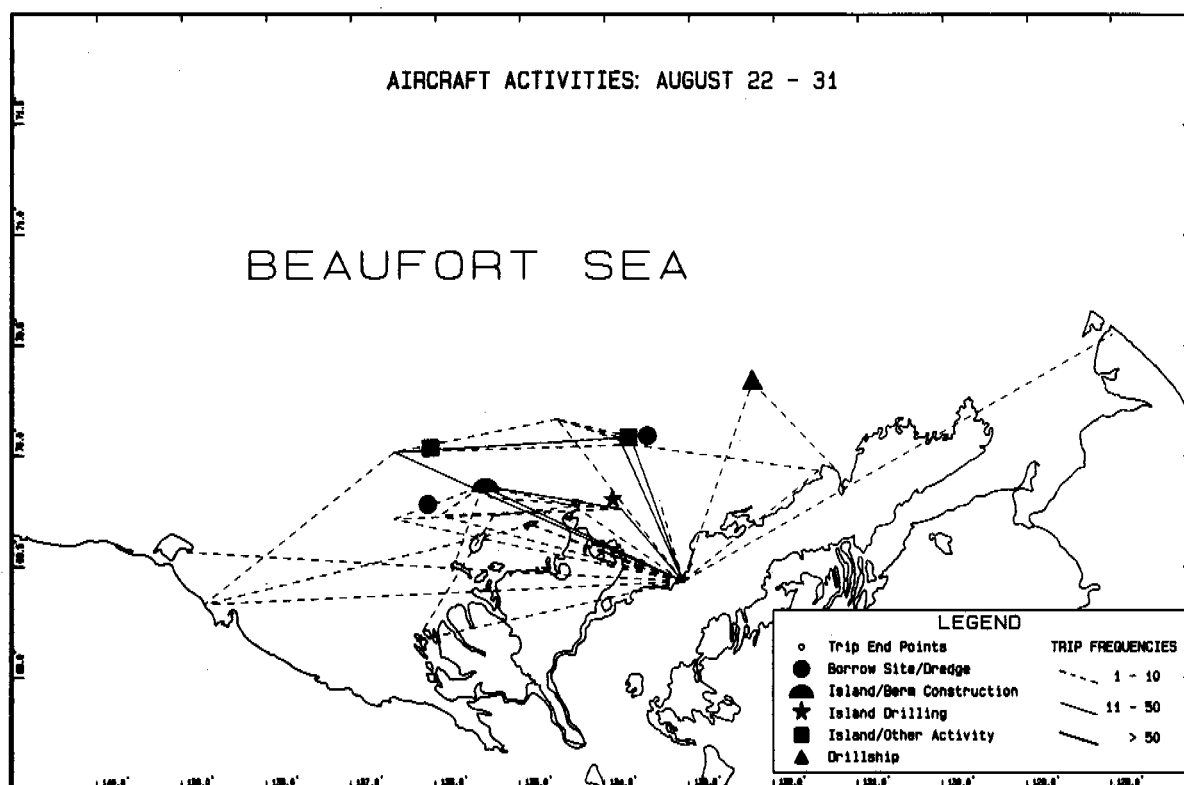
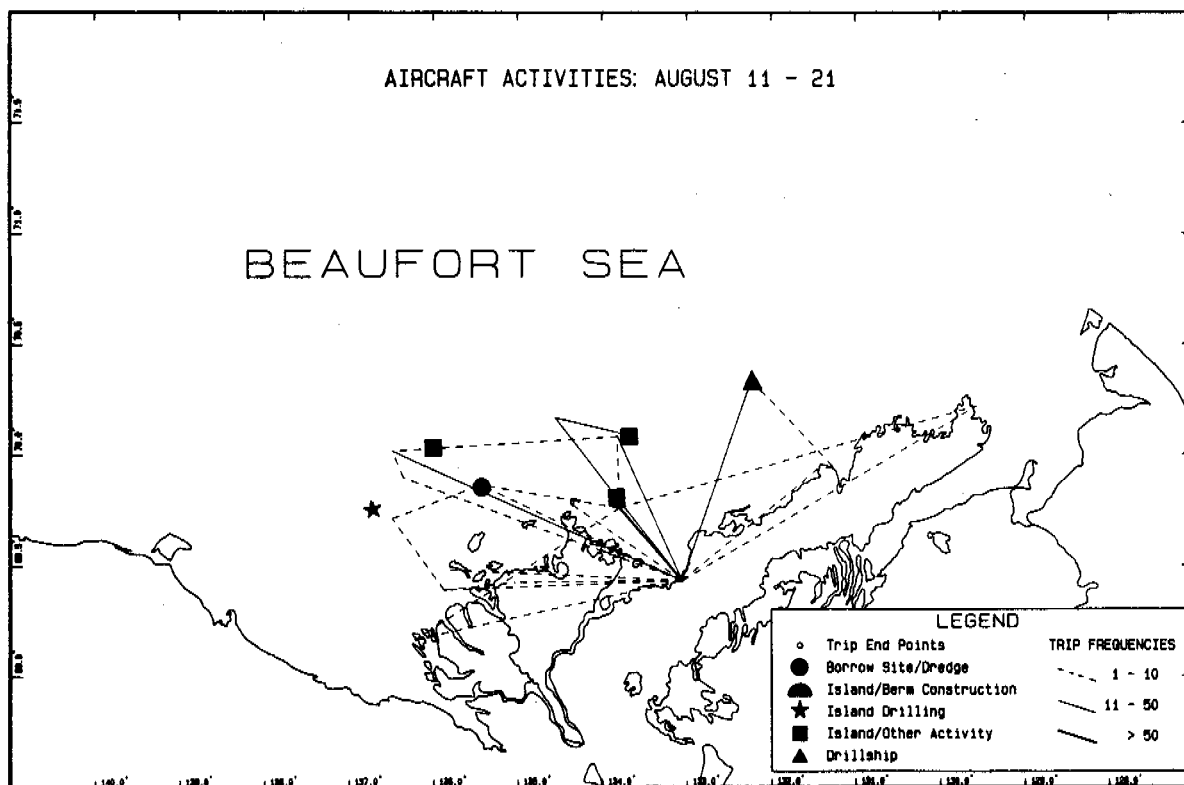
AIRCRAFT ACTIVITIES: DECEMBER

BEAUFORT SEA



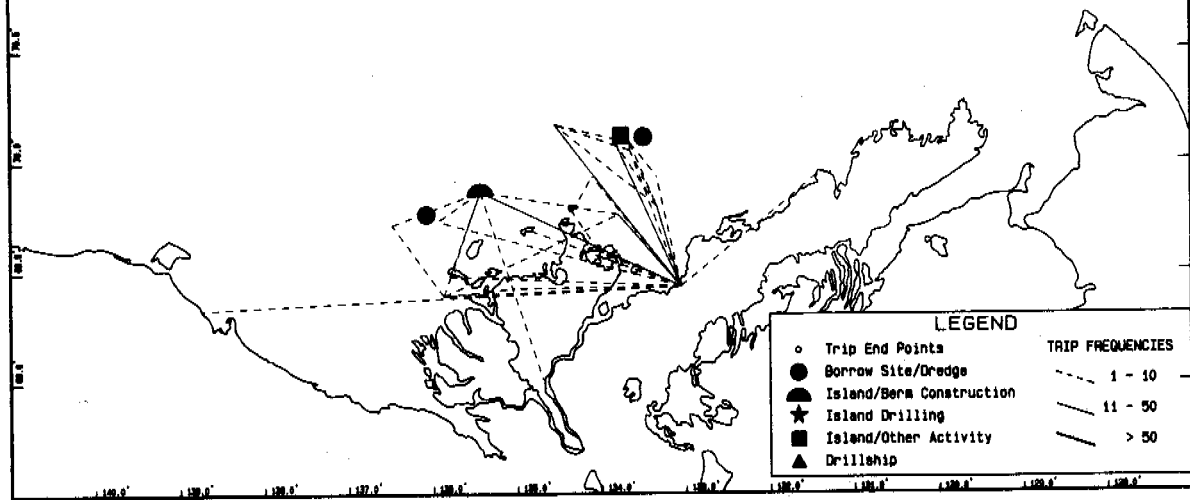






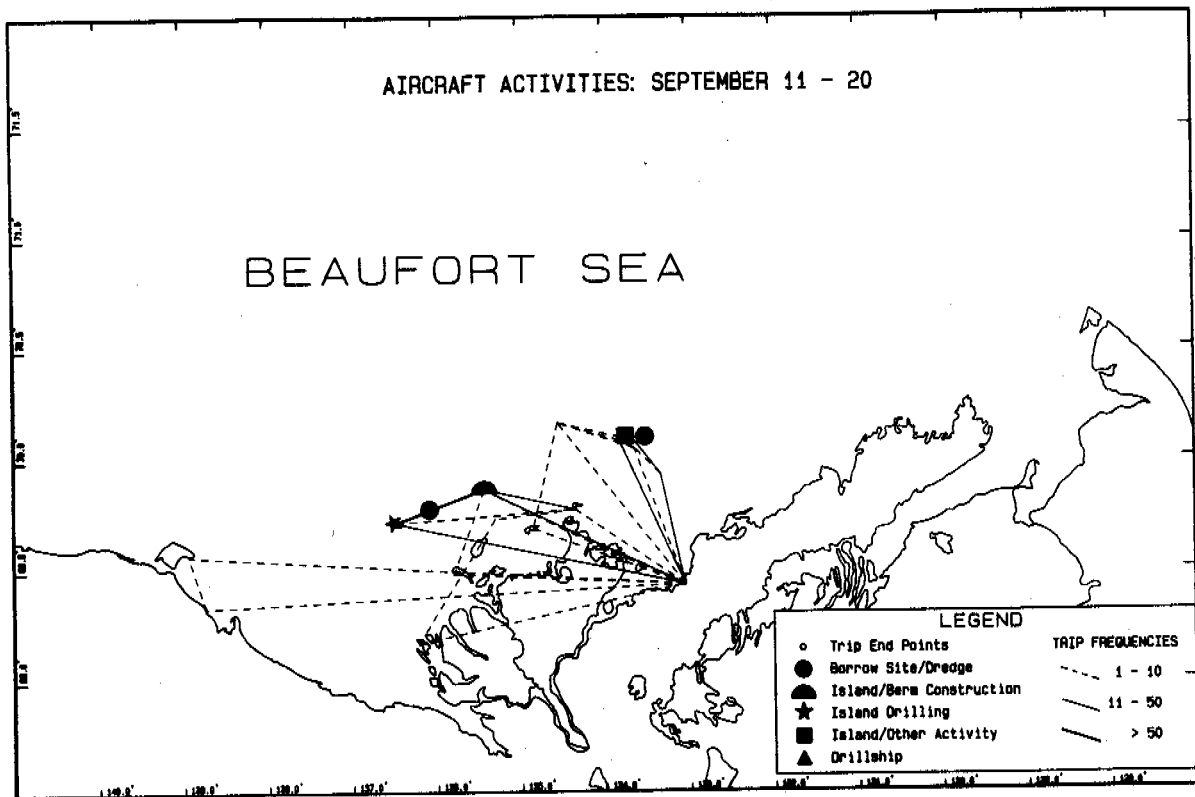
AIRCRAFT ACTIVITIES: SEPTEMBER 1 - 10

BEAUFORT SEA



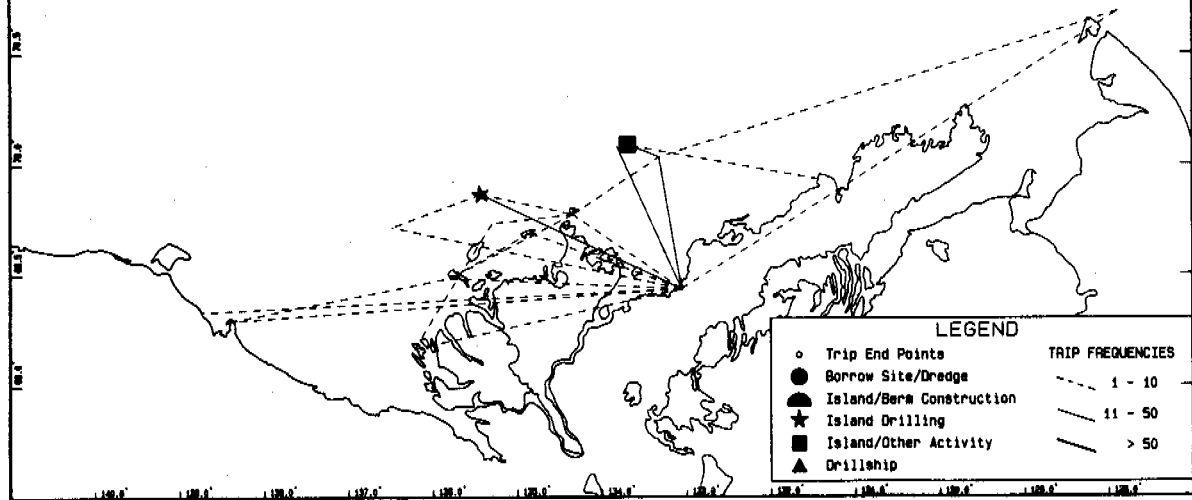
AIRCRAFT ACTIVITIES: SEPTEMBER 11 - 20

BEAUFORT SEA



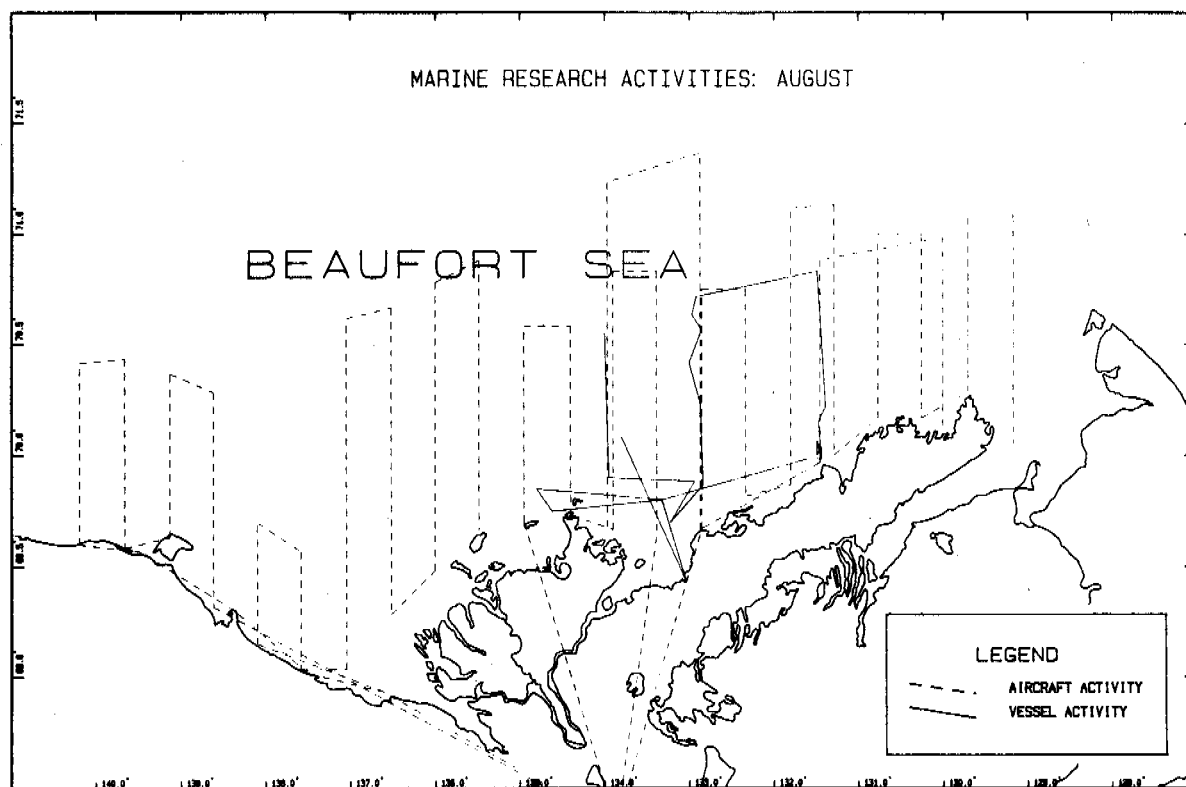
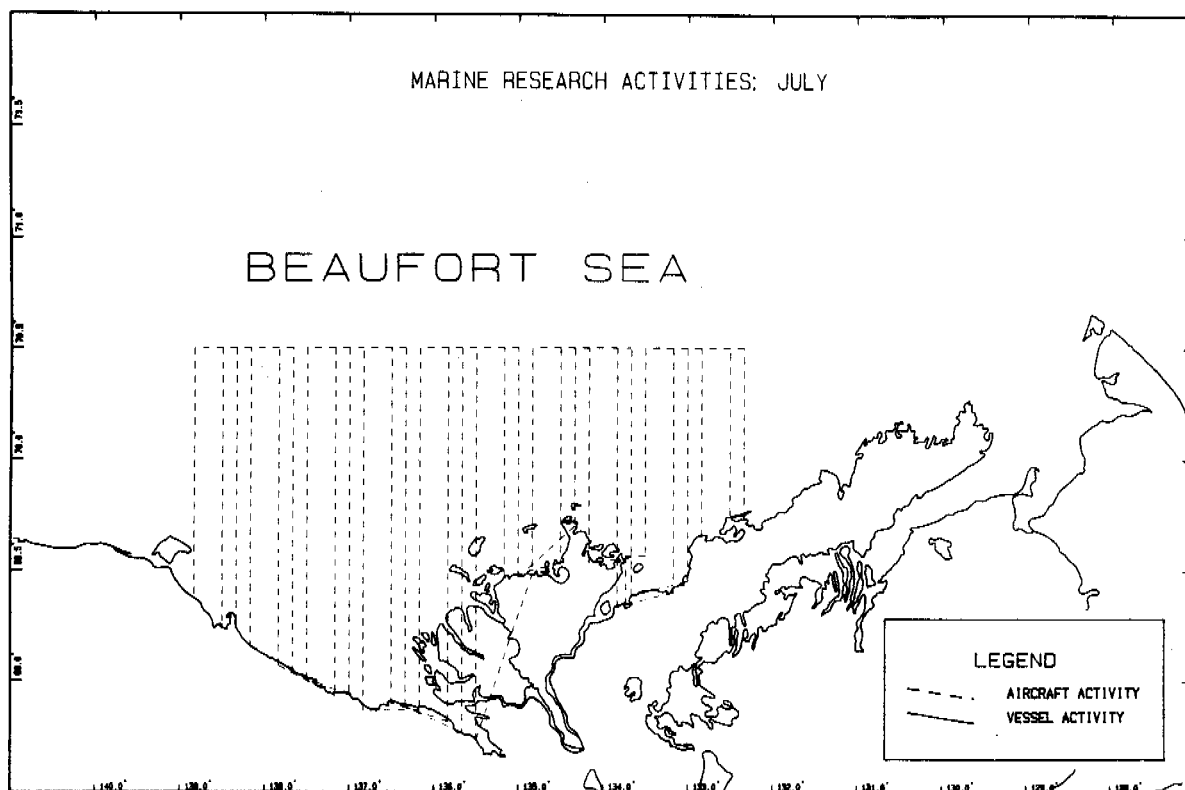
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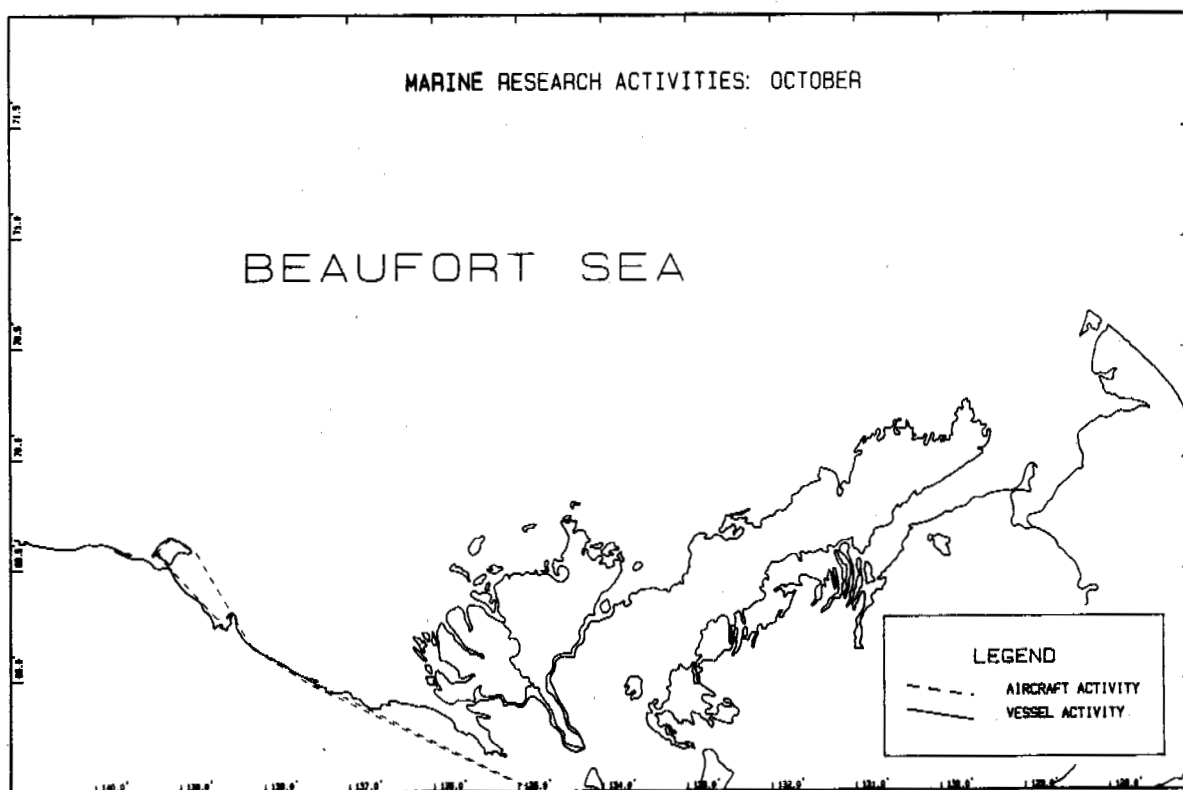
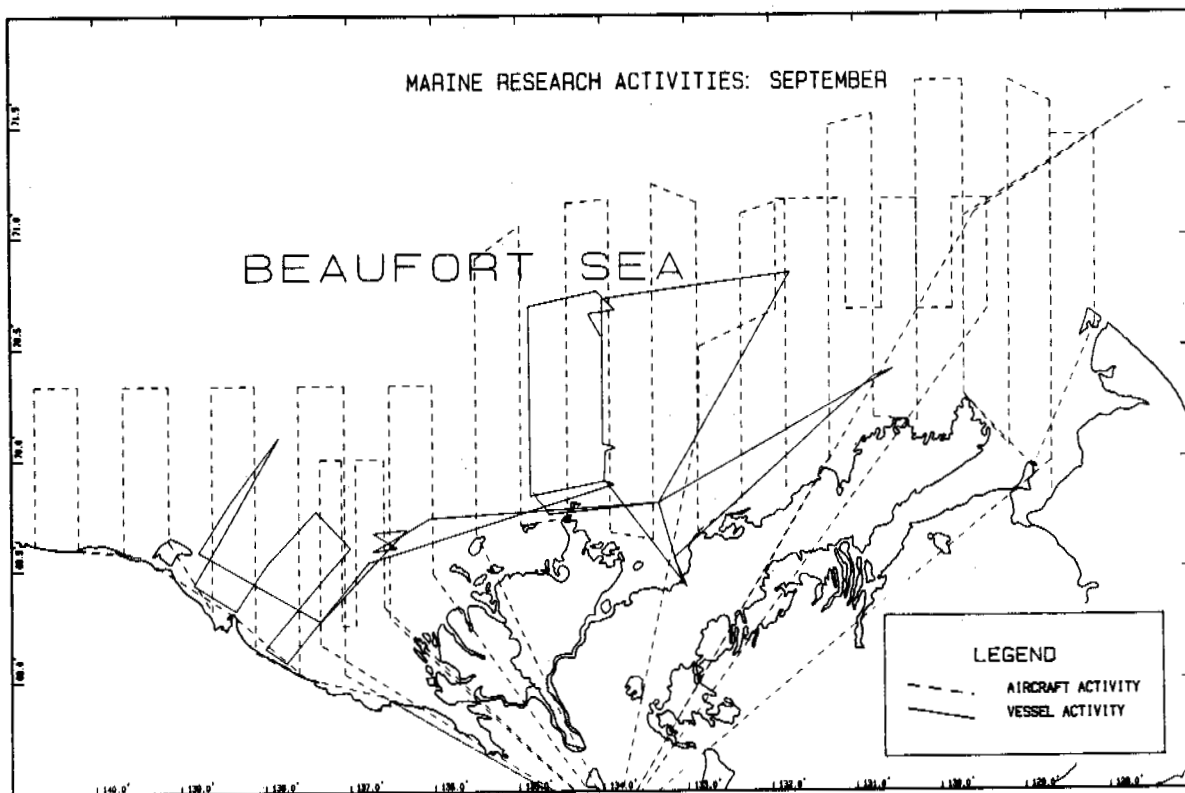
BEAUFORT SEA

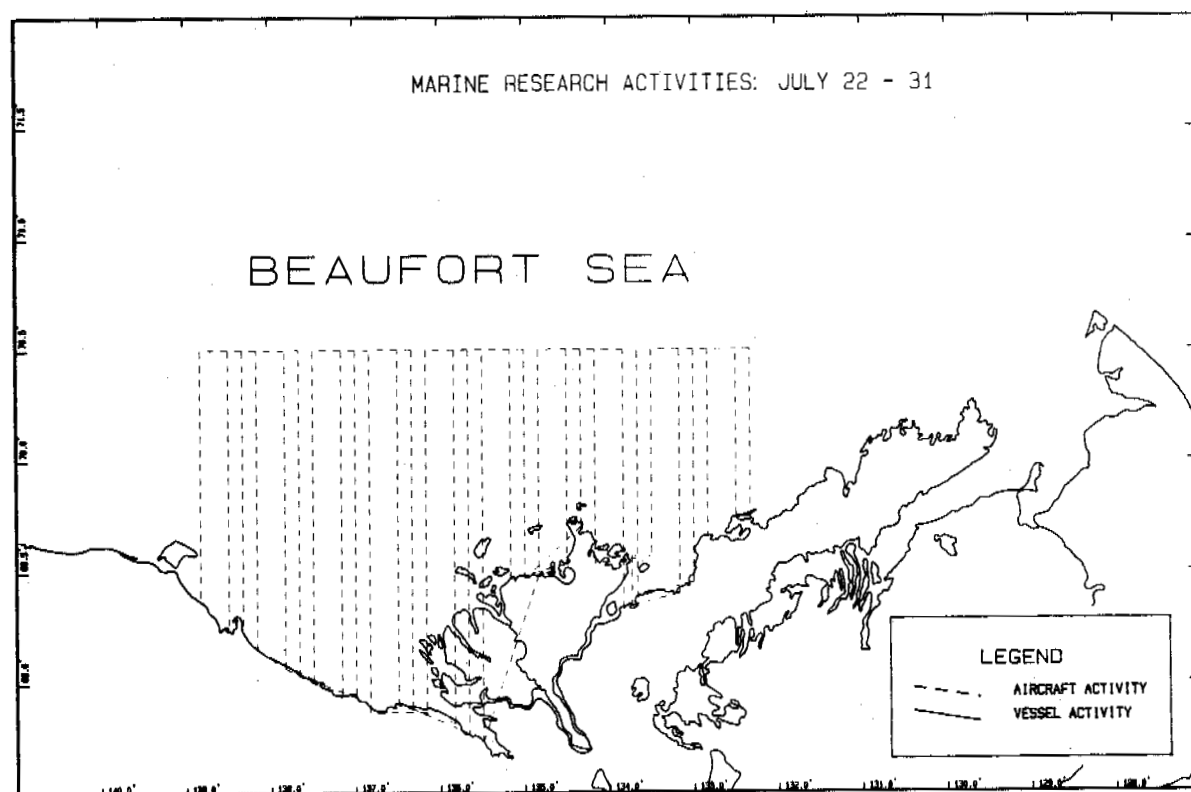
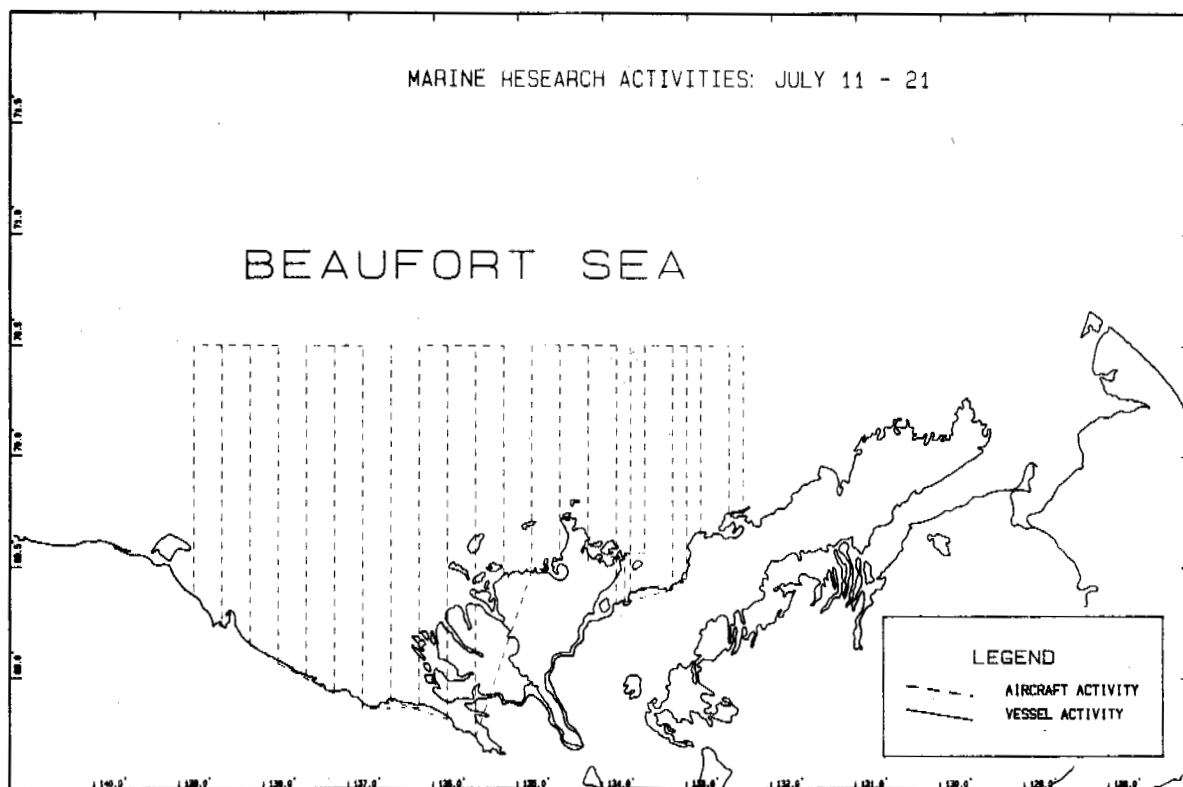


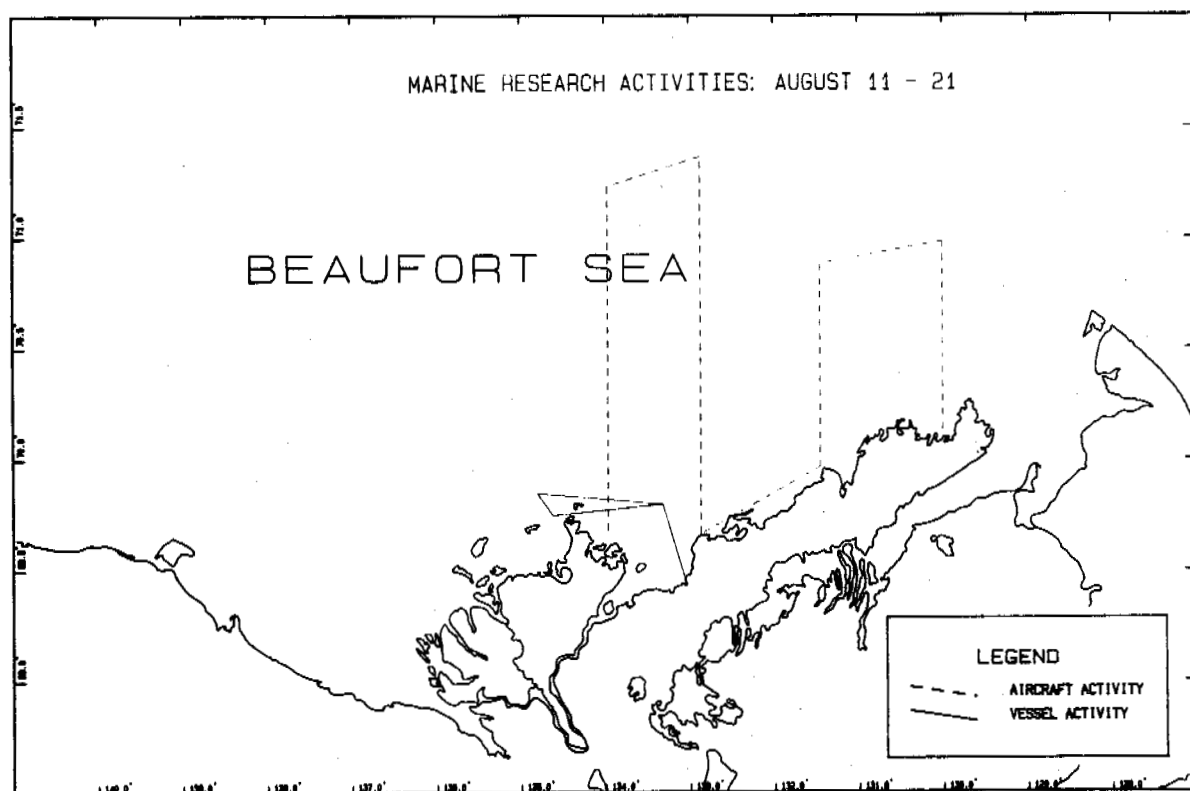
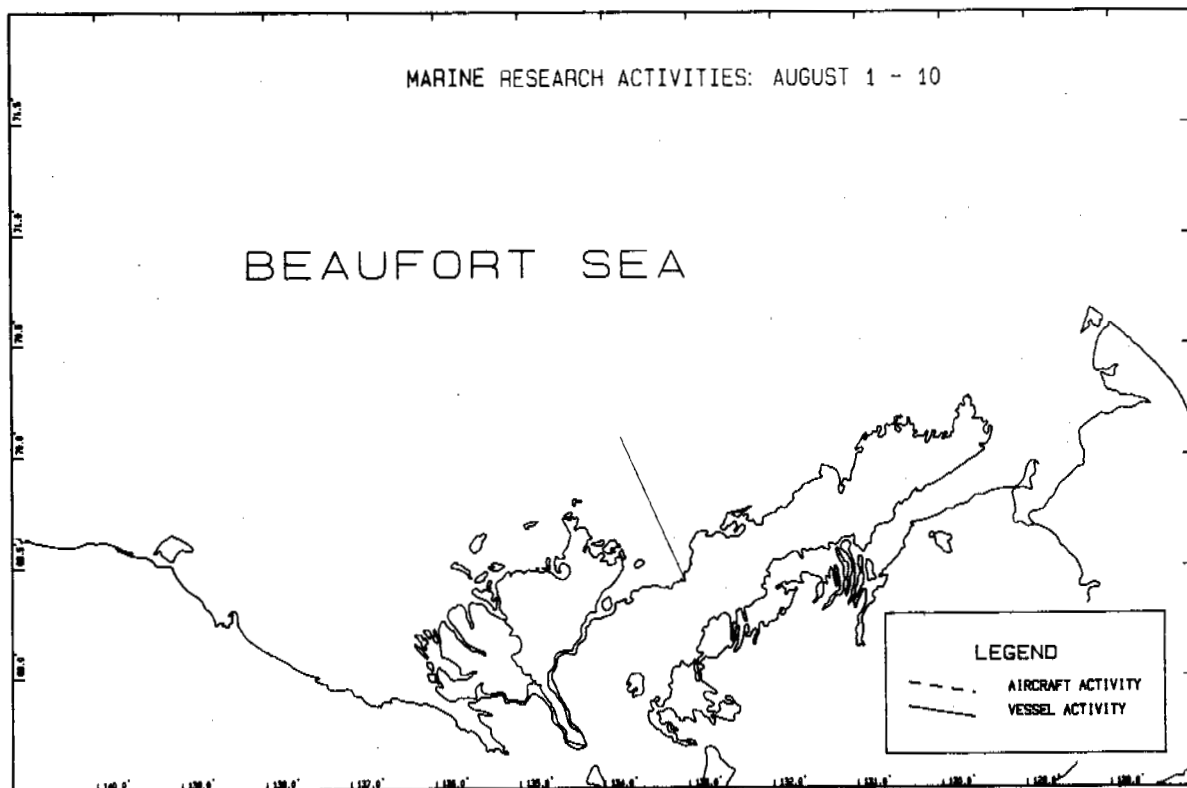
5.4 Marine Research Activities (1986)

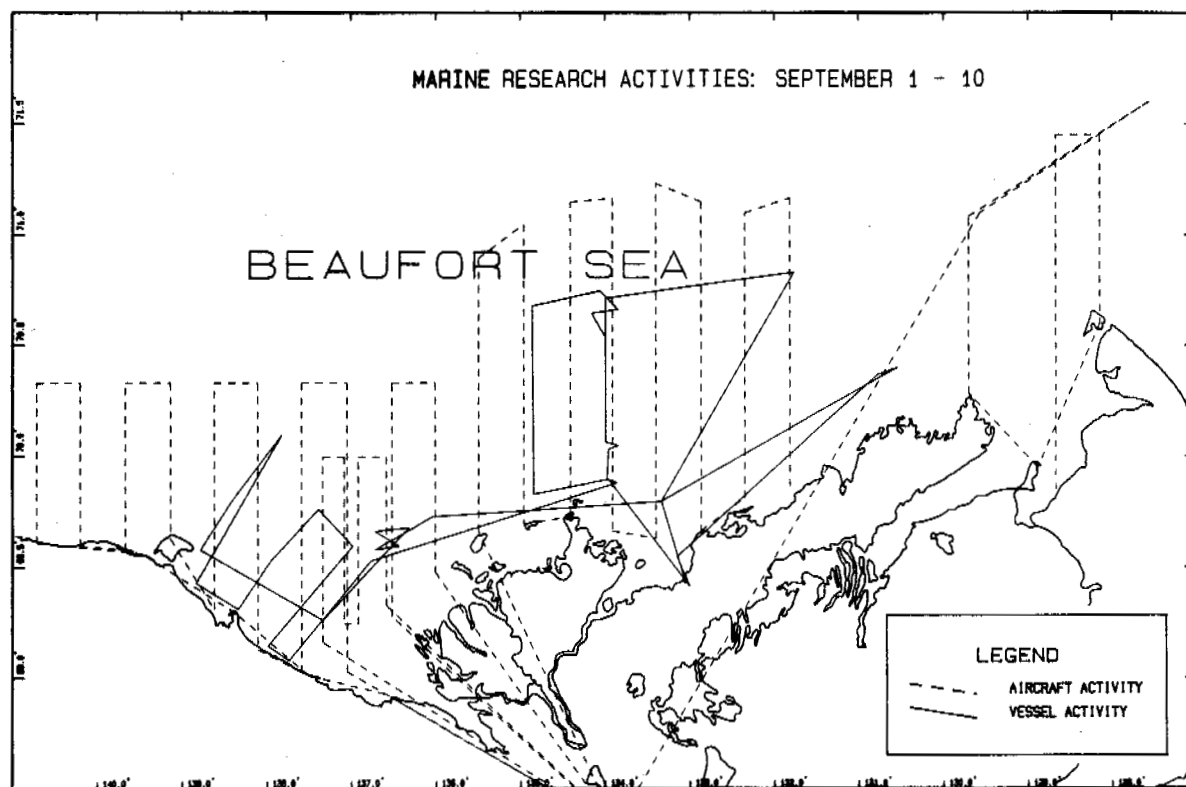
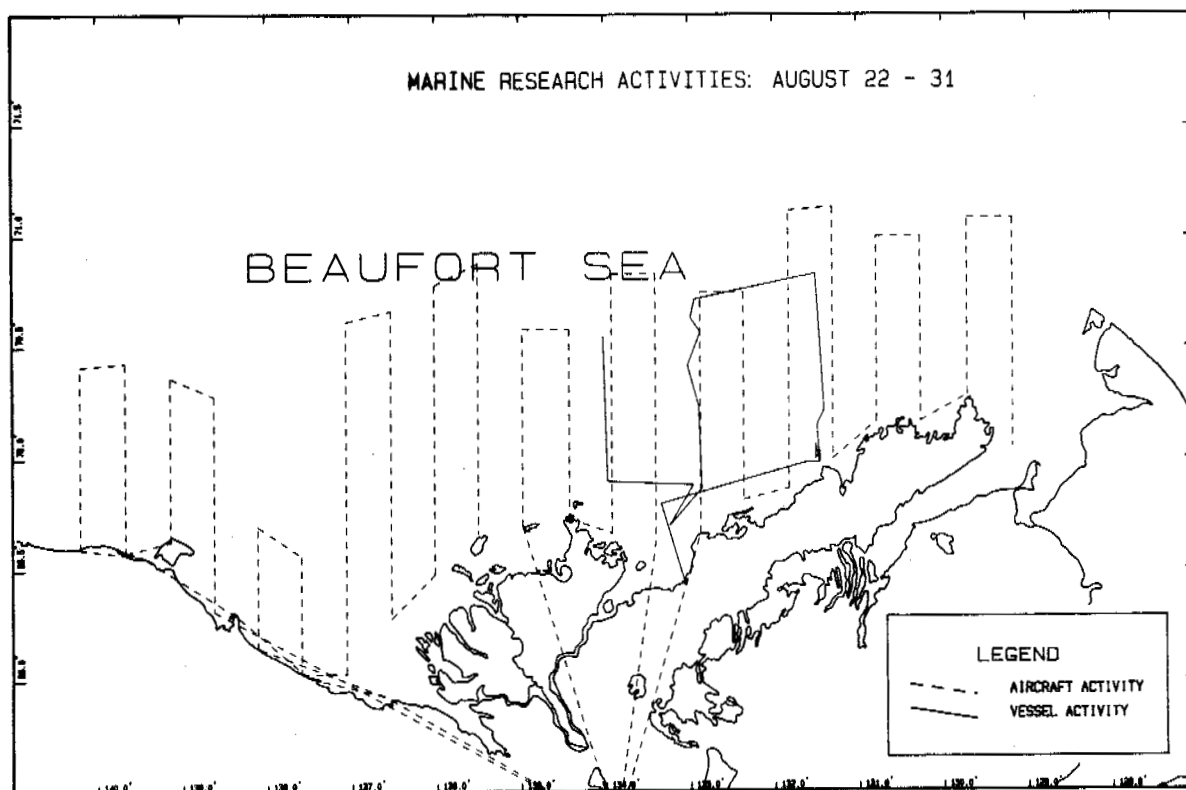
Note: There were no marine research activities for the 1986 reporting periods of June, July 1-10, November and December.

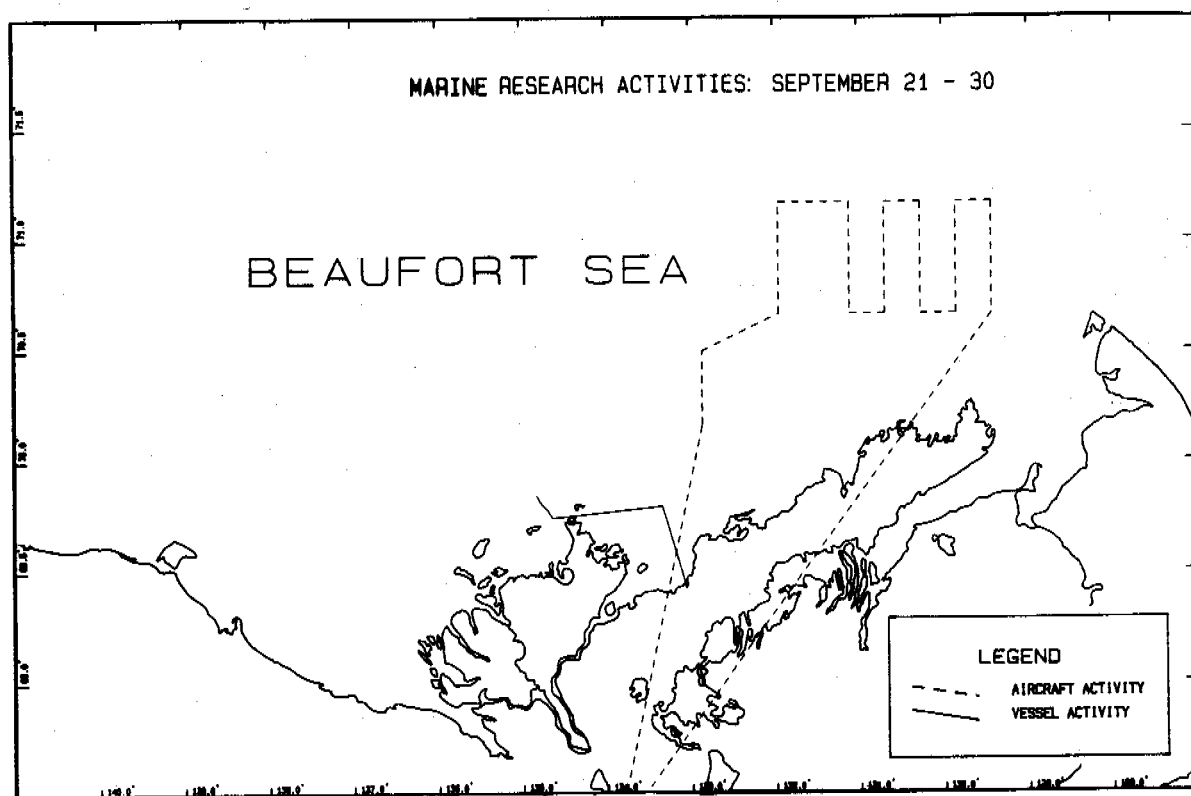
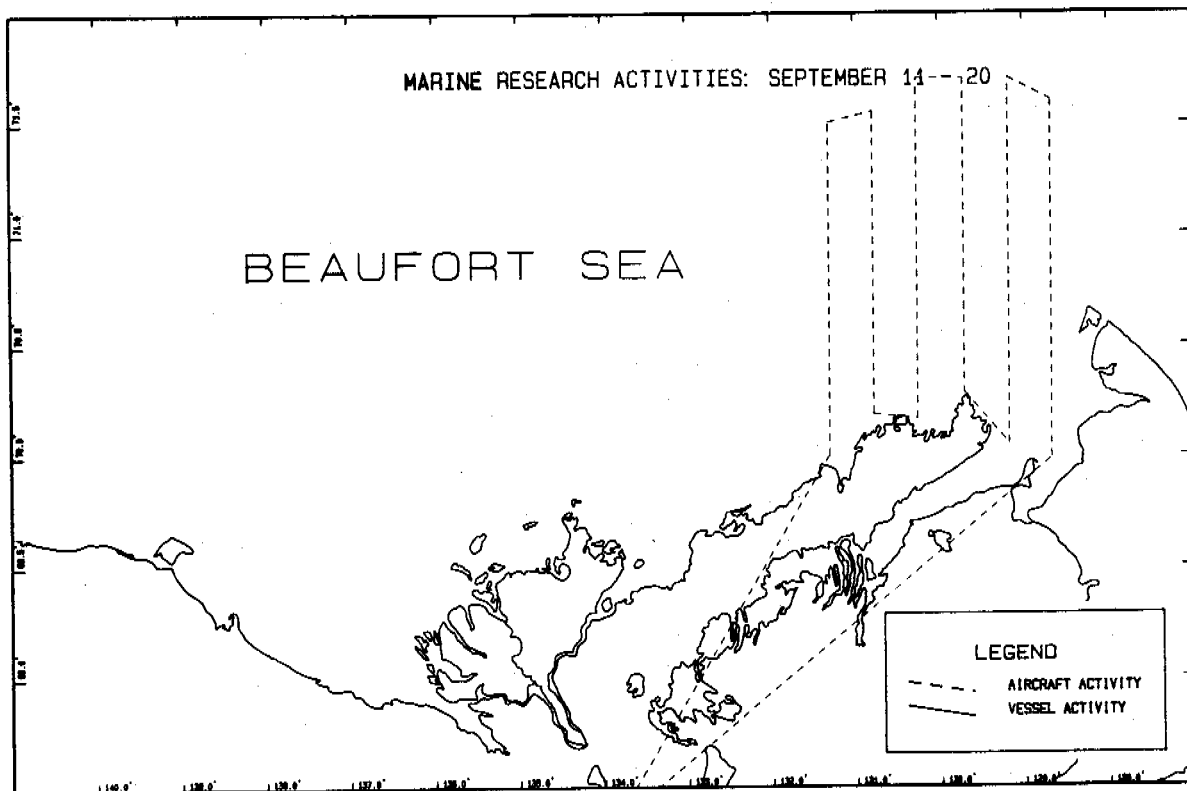












6.0 COMPARISON OF 1986 INDUSTRIAL ACTIVITIES WITH
ACTIVITIES IN PREVIOUS YEARS

A direct comparison of the level of industrial activity over the entire June 01 to December 31 period is possible only for 1985 and 1986, i.e. the industrial activity information has been collected and analyzed in a similar format for both of these years. For the years 1980 to 1984, comparisons are possible only for the August 01 to September 10 time period. In 1981, information is also available for the July 22 to 31 period; however, a comparison of the three years (1981, 1985, 1986) with information available for July 22 to 31 is probably meaningless because of the significant effect other factors have on the timing of industrial activities within such a small time frame (10 days), eg. ice patterns and weather.

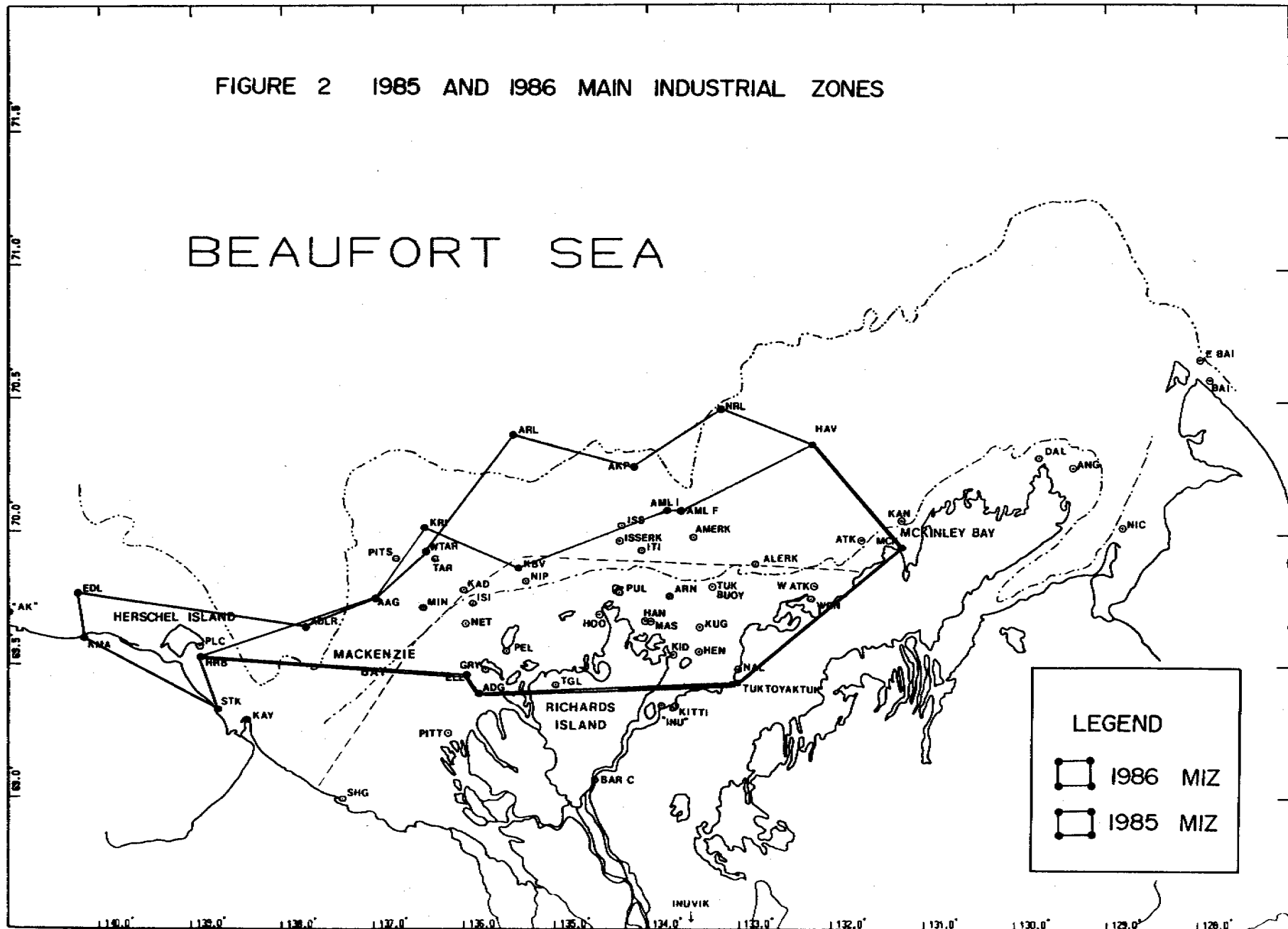
6.1 Comparison of 1986 and 1985 Industrial Activities

There was much overlap between the 1986 MIZ and the 1985 MIZ; the 1986 MIZ was somewhat smaller since it did not extend as far west as Komakuk or as far north as Nerlerk, Akpak and Arluk (Figure 2). The inclusion of Kringalak in the 1986 MIZ did extend the 1986 boundary beyond that of the 1985 MIZ, but this "new" area was quite small compared to the size of the areas where there was not much activity in 1986 but considerable activity in 1985.

The intensity of vessel and aircraft activity was greatly diminished in 1986 compared with 1985 (Figure 3). Vessel movements showed the same general pattern in both years, however, the peak monthly total for vessel movements was 368 trips in August for 1986, as compared with 903 trips in September for 1985 (Figure 3). Aircraft movements started at about the same intensity in both years, but in 1985 the number of movements per month increased from June through September and then declined to about the same level in December as in June, while in 1986 there

[illegible]

BEAUFORT SEA

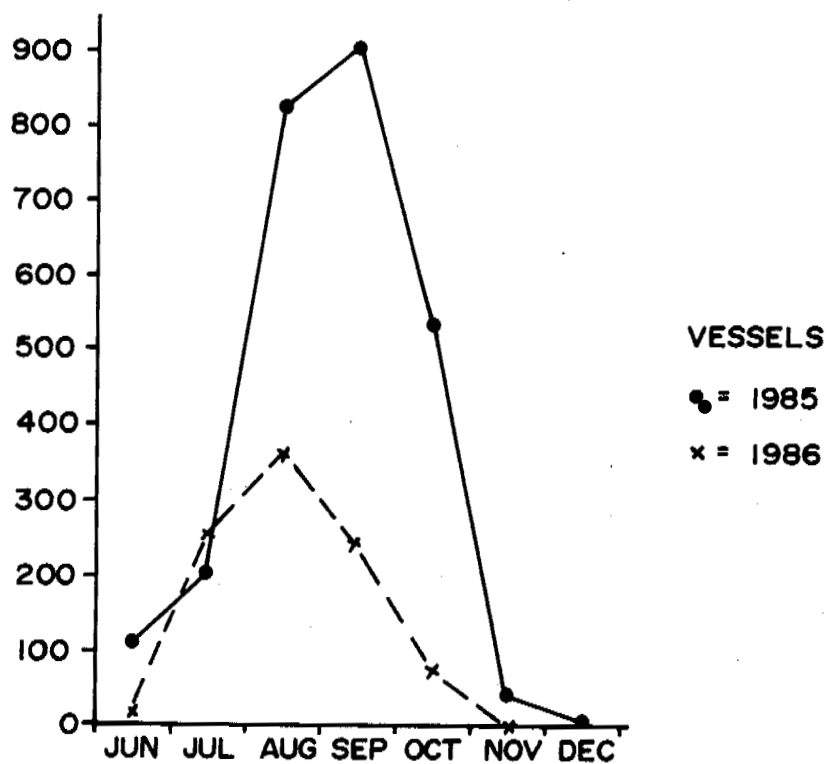
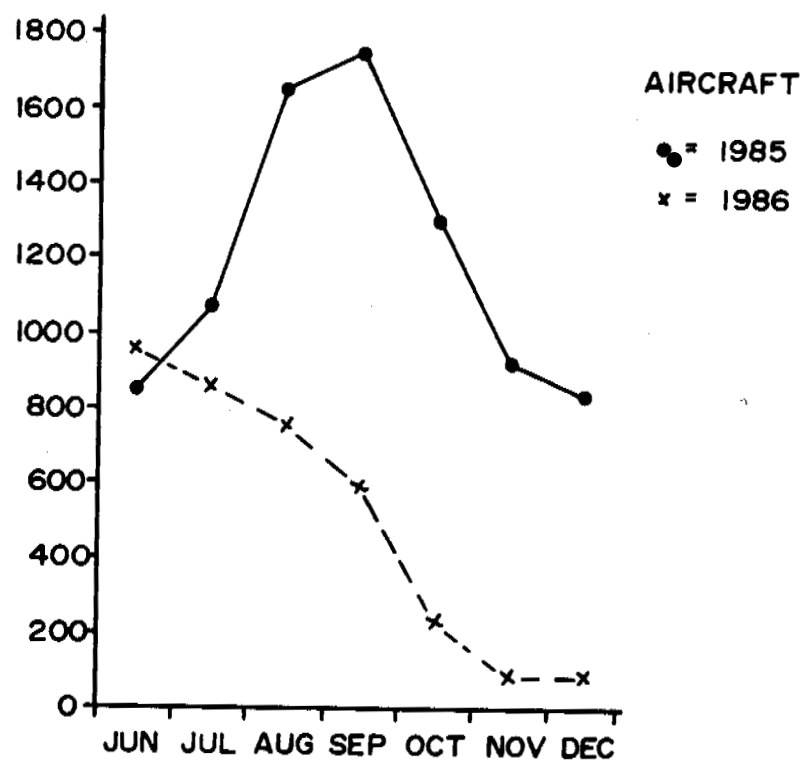


LEGEND

1986 MIZ

1985 MIZ

FIGURE 3 LEVELS OF AIRCRAFT AND VESSEL ACTIVITY IN THE CANADIAN BEAUFORT SEA IN 1985 AND 1986 BY MONTH JUNE - DECEMBER



was a steady decline from June through November. A total of 92 aircraft movements occurred in December 1986 as compared with 839 in December 1985.

It is difficult to quantify seismic and sounding activities and research activities, except by kilometres of line surveyed, and this information was not available. There was a qualitative difference in the level of seismic and sounding activity in 1986 as compared to 1985. The level of sounding activity was much greater in 1986 than in 1985 (11 locations-time period vs. 1 location-time period, respectively). The opposite appeared to be the case for seismic activity, i.e. there was much more seismic activity in 1985 than in 1986. Although details are not available for the 1986 seismic activities, only one vessel shot seismic lines in 1986 compared with five vessels in 1985, and seismic lines were shot during three time periods in 1986 compared with six time periods in 1985.

For comparative purposes, if research flights above 600 m are not included in the 1986 research activities, then there was less aircraft research activity in 1986 than in 1985. A comparison of research vessel activity in 1985 with that in 1986 is difficult since the 1985 database is incomplete (Norton and McDonald 1986). However, it is likely that there was slightly more vessel research activity in 1986, because of the bowhead feeding study conducted that year.

6.2 Comparison of 1986 and 1980-1985 Industrial Activities

The location of the center of the MIZ has remained the same over the 1980 to 1986 time span (see Richardson (1985) for 1980 to 1984 information). The areas north and northeast of Richards Island have consistently been within the MIZ. The extent of activity to the east and west of this core area has changed from year to year. The 1980 boundary extended a little to the east but not to the west from the core area; the 1981 boundary extended farther east and to the west as compared with 1980. In 1982, 1983, 1984 and 1986 the MIZ was very similar, from Herschel Island to McKinley Bay. The 1985 MIZ extended farther west than the MIZ in any other year. It should be noted that the 1980 to 1984 MIZ's are based on information collected for a more limited time span than the 1985 to 1986 MIZ's and the actual sizes of these MIZ's (1980 to 1984) may be greater than those shown in Richardson (1985).

A quantitative comparison of the levels of industrial activities from year to year is difficult because:

1. Weather affects the levels of activities during specific time periods and, for five of the seven years, information is available for a shorter time period than for the two other years.

2. In 1985, the study area was expanded to include nearshore areas (water depths less than 10 m).

3. Most fixed-wing aircraft are not dedicated to industrial work. Hence a Twin Otter may carry supplies to industrial sites one day and fly scheduled flights the remainder of the season.

4. The number of trips for aircraft and vessels often depends on the distance between the points travelled. This limitation applies more to vessels than to aircraft since vessels are slower and tend to operate continuously over the contract period. Aircraft activities are limited primarily by weather.

5. Detailed information on number of working hours/vessel or aircraft is not readily available.

Measures of the industrial activity level that are least affected by these limitations are the number of dredges, drillships, seismic vessels and helicopters operating in the region. All of the above vessels, not helicopters, tend to operate continuously once on contract, are taken out of the area or put in storage if not in use, and are affected less than other machinery by weather constraints. These measures indicate the intensity of activity while activity is occurring, not the length of the active season.

According to the number of dredges or drillships or seismic vessels operating, 1983 was the year with the highest level of activity in the Beaufort Sea region, and 1986 was the year with the lowest level (Table 3). This is in agreement with recollections of the authors who worked in the area, at least for short periods, during each of the 1980 to 1986 open-water seasons. The number of dredges operating is a particularly good indicator since this measure is usually directly related to the number of drilling bases constructed for use in that year or the next year. Once a base has been constructed, it is likely to be used since the cost of building a drilling base is so high. The decline in the number of dredges operating in 1986, as compared with 1985, indicates that there will probably not be much activity in the Beaufort Sea region in 1987.

In terms of the number of helicopters operating, 1985 was the year with the most activity and 1980 was the year with the least activity (Table 3). However, the helicopter database is more complete for 1985 and 1986 than for previous years (because of the longer time frame for which information was obtained), and this probably accounts for most of the differences when comparing patterns of helicopter use between years.

The number of wells spudded follows the same pattern as number of dredges, drillships and seismic vessels operating for 1980 to 1984 (Table 3). In 1985, the number of wells spudded increased while the number of dredges, drillships and seismic vessels operating remained the same or decreased. Three of the new wells spudded in 1985 were delineations at old sites and 10 were at onshore locations, thus the number of wells spudded is not a good indicator of offshore activity, at least in 1985. The number of wells spudded in offshore locations was not used because this information was not readily available for 1980, 1981 and 1983. The number of wells drilled and terminated was not used as an indicator since many wells are spudded one year, re-entered for one or two years, and then terminated. Hence the year the site was terminated can be long after the year the site was dredged. Since dredging accounts for a large proportion of the vessel trips, the number of wells drilled and terminated was deemed an appropriate measure of industrial activity levels.

Table 3. Number of operating dredges, drillships, seismic vessels and helicopters and number of wells spudded in the Canadian Beaufort Sea, 1980 - 1986. (Data sources are: Canada Oil and Gas Lands Administration 1986; Richardson 1983, 1984, 1985, Norton and McDonald 1986, and this study.)

	1980	1981	1982	1983	1984	1985	1986
# dredges	2	4	6	8-9	7+	6	2
# drillships*	4	4	4	5	5	5	3
# seismic vessels	2	3	3	5	3-4	4	1
# helicopters	5	7	8	10	8-9	11	8+
# wells spudded**	NA***	4	8	11	6	19	NA

* # of drillships includes mobile drilling platforms

** # of wells spudded includes drilling sites in offshore and onshore locations

*** NA = information not available

7.0 CONCLUSIONS AND RECOMMENDATIONS

(Ricki: We need some guidance as to whether we should include this section and, if so, what direction it should take????)

We could discuss:

1. The appropriateness of various measures to indicate industrial activity levels? and/or
2. The general levels of the types of activities in 1985 and 1986?

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Arctic industrial activities compilation: Volume 1; Beaufort
Sea: Marine dredging activities 1959 to 1982. Can. Data
Rep. Hydrogr. Ocean Sci. 32: (Vol. 1) 192 p.

9.0 APPENDICES

APPENDIX A

TABLES OF 1986 INDUSTRIAL ACTIVITIES

The following appendices (A-1, A-2, A-3 and A-4) present tabular summaries of the 1986 industrial activities by activity type for active periods only.

Appendix A-1 Seismic and Sounding Activities (1986)

Note: Seismic - There was 1986 seismic activity from August 11 to 27 near Amauligak I-65 and on August 28 near Issungnak. However, detailed information regarding locations of these surveys was not provided by the geophysical company that conducted the survey in time for inclusion in this report.

Sounding - There were no sounding activities for the 1986 reporting periods of June, July 1-10, July 11-21, September 11-20, September 21-30, October, November and December.

SOUNDING ACTIVITIES

JULY 22 - 31

LOCATIONS -	69 43.0	136 28.0
	69 45.7	133 46.3
	69 52.0	135 25.0
	69 59.0	133 31.0

AUGUST 1 - 10

LOCATIONS -	69 52.0	135 25.0
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END POINT 1

END POINT 2

TRIPS

69 33.0	135 56.0
69 49.0	135 20.0

69 43.0	136 28.0	1
69 33.0	135 56.0	1

AUGUST 22 - 21

LOCATIONS -	69 52.0	135 25.0
	69 56.0	134 5.0
	70 13.0	129 33.0

SEPTEMBER 1 - 10

LOCATIONS -	69 43.0	136 28.0
	69 45.7	133 46.3

Appendix A-2 Vessel Activities (1986)

Note: There were no vessel activities for the 1986 reporting periods of November and December.

VESSEL ACTIVITIES - JUNE

END POINT 1	END POINT 2	TRIPS
AAGNERK	AMAILIGAK I-65	4
HERSCHEL BASIN	AAGNERK	9
HERSCHEL BASIN	AMAILIGAK I-65	5
TOTAL NUMBER OF TRIPS		18

VESSEL ACTIVITIES - JULY

END POINT 1	END POINT 2	TRIPS
69 17.0 137 24.0	70 8.00 135 57.0	1
69 18.0 137 23.0	AMAULIGAK F-24	1
69 18.0 137 24.0	AMAULIGAK F-24	1
69 18.0 137 24.0	HERSCHEL BASIN	3
69 32.0 138 55.0	69 17.0 137 24.0	1
69 47.0 137 11.0	69 58.0 133 21.0	1
69 49.9 135 41.5	69 50.5 137 5.50	1
69 50.5 137 5.50	AMAULIGAK F-24	1
69 56.0 133 21.0	70 3.00 133 31.0	1
69 58.0 133 14.0	AMAULIGAK F-24	2
69 58.0 133 21.0	AMAULIGAK F-24	1
70 10.0 134 32.0	AMAULIGAK F-24	9
70 11.0 133 29.0	69 58.0 133 14.0	1
70 11.0 133 37.0	70 11.0 133 46.0	1
70 11.0 133 46.0	70 8.00 133 36.0	1
70 11.0 133 56.0	70 14.0 133 48.0	1
70 14.0 133 48.0	70 8.00 134 1.00	1
70 2.00 134 51.0	TUKTOYAKTUK	1
70 3.00 133 31.0	70 0.00 133 24.0	1
70 3.00 133 58.0	70 4.00 133 48.0	1
70 30.0 127 0.0	EAST BAILLIE	1
70 4.00 133 48.0	70 6.00 134 13.0	1
70 4.90 133 56.5	69 57.0 133 30.0	2
70 4.90 133 56.5	AMAULIGAK F-24	2
70 45.5 133 51.1	69 49.9 135 41.5	1
70 6.00 134 13.0	70 10.0 134 32.0	1
70 8.00 133 36.0	70 11.0 133 29.0	1
70 8.00 134 1.00	70 3.00 133 58.0	1
70 8.00 135 57.0	70 11.0 133 56.0	1
AAGNERK	69 18.0 137 23.0	1
AAGNERK	69 47.0 137 11.0	1
AAGNERK	HERSCHEL BASIN	3
AAGNERK	PITSIULAK	2
AAGNERK	TARSIUT	4
AAGNERK	TUKTOYAKTUK	2
ADGO	ARNAK	3
ADGO	TUKTOYAKTUK	5
ALASKA	MCKINLEY BAY	2
AMAULIGAK F-24	69 56.0 133 21.0	1
AMAULIGAK F-24	69 58.6 133 18.3	2
AMAULIGAK F-24	70 11.0 133 37.0	1
AMAULIGAK F-24	70 31.0 132 13.0	1
AMAULIGAK F-24	70 39.0 133 49.0	2

VESSEL ACTIVITIES - JULY (continued)

END POINT 1	END POINT 2	TRIPS
AMAILIGAK F-24	70 45.5 133 51.1	1
AMAILIGAK F-24	AAGNERK	3
AMAILIGAK F-24	HERSCHEL BASIN	21
AMERK	TUKTOYAKTUK	1
ARNAK	ADGO	2
ARNAK	ISSIGAK	1
ARNAK	KAUBVIK	6
ARNAK	MINUK	5
ARNAK	NIPTERK	2
ARNAK	PULLEN ISLAND	2
ARNAK	TUKTOYAKTUK	26
BAR C	ADGO	1
EAST BAILLIE	MCKINLEY BAY	1
EAST BAILLIE	TUKTOYAKTUK	2
HAVIK	70 18.0 130 24.0	1
HAVIK	70 31.0 132 13.0	5
HAVIK	70 7.00 131 28.0	2
HAVIK	ALASKA	1
HAVIK	MCKINLEY BAY	5
HERSCHEL BASIN	70 2.00 134 51.0	1
ISSIGAK	MINUK	1
KAUBVIK	AMERK	1
KAUBVIK	ISSIGAK	8
KAUBVIK	MINUK	8
MCKINLEY BAY	TUKTOYAKTUK	18
MINUK	NIPTERK	1
NIPTERK	KAUBVIK	45
PULLEN ISLAND	ADGO	1
PULLEN ISLAND	TUKTOYAKTUK	1
TUKTOYAKTUK	AMAILIGAK F-24	11
TUKTOYAKTUK	BAR C	1
TUKTOYAKTUK	HANSON	2
TUKTOYAKTUK	HERSCHEL BASIN	2
TUKTOYAKTUK	INUVIK	4
TUKTOYAKTUK	TAGLU	2
TOTAL NUMBER OF TRIPS		252

VESSEL ACTIVITIES - AUGUST

END POINT 1	END POINT 2	TRIPS
69 55.0 133 21.0	TUKTOYAKTUK	1
69 57.0 133 44.0	70 0.00 134 0.00	1
70 0.00 133 24.0	70 2.00 133 40.0	1
70 0.00 134 0.00	71 4.00 127 24.0	1
70 13.0 135 6.00	70 19.0 136 9.00	4
70 19.0 136 9.00	ALASKA	4
70 2.00 133 40.0	69 55.0 133 21.0	1
70 24.0 131 58.0	HAVIK	1
70 30.0 127 0.0	EAST BAILLIE	3
70 31.0 132 13.0	70 24.0 131 58.0	3
70 36.0 131 40.0	ALASKA	1
70 9.00 132 46.0	70 13.0 135 6.00	4
71 0.0 127 0.0	71 4.0 127 24.0	1
ADGO	PELLE ISLAND	1
ADGO	TAGLU	1
ALASKA	HAVIK	1
ALASKA	TUKTOYAKTUK	5
ALERK	NIPTERK	1
AMAILIGAK F-24	70 10.0 137 24.0	3
AMAILIGAK F-24	70 12.0 134 15.8	2
AMAILIGAK F-24	AAGNERK	2
AMAILIGAK F-24	HERSCHEL BASIN	1
AMAILIGAK F-24	ISSUNGNAK	1
AMAILIGAK F-24	KRINGALAK	11
AMAILIGAK F-24	TARSIUT	5
AMAILIGAK F-24	TUKTOYAKTUK	14
AMERK	ARNAK	1
ANGASAK	MCKINLEY BAY	1
ARNAK	ITIYOK	11
ARNAK	KANNERK	1
ARNAK	MASON BAY	1
ARNAK	MINUK	3
ARNAK	TUKTOYAKTUK	66
HANSON	PULLEN ISLAND	1
HAVIK	70 31.0 132 13.0	3
HAVIK	70 33.0 131 27.0	2
HAVIK	70 36.0 131 40.0	1
HAVIK	70 9.00 132 46.0	4
HAVIK	AMAILIGAK F-24	2
HAVIK	MCKINLEY BAY	9
HAVIK	TUKTOYAKTUK	9
HERSCHEL BASIN	KRINGALAK	2
ISSERK	ISSUNGNAK	1
ISSIGAK	KAUBVIK	44
ISSUNGNAK	ITIYOK	1
ITIYOK	KAUBVIK	1

VESSEL ACTIVITIES - AUGUST (continued)

END POINT 1	END POINT 2	TRIPS
KANNERK	WEST ATKINSON	1
KAUBVIK	ARNAK	1
KAUBVIK	ISSERK	1
KAUBVIK	KADLUK	2
KAUBVIK	MINUK	4
KAUBVIK	TUKTOYAKTUK	8
KIDLUIT	HANSON	1
KOMAKUK	STOKES POINT	1
KRINGALAK	TUKTOYAKTUK	2
KUGMALLIT	ARNAK	1
MASON BAY	TUKTOYAKTUK	1
MCKINLEY BAY	ALASKA	3
MCKINLEY BAY	TUKTOYAKTUK	23
MINUK	TUKTOYAKTUK	21
PELLY ISLAND	ARNAK	1
SHINGLE POINT	TUKTOYAKTUK	1
STOKES POINT	SHINGLE POINT	1
TAGLU	TUKTOYAKTUK	1
TARSIUT	KRINGALAK	2
TARSIUT	MCKINLEY BAY	1
TUKTOYAKTUK	69 49.0 133 45.0	4
TUKTOYAKTUK	69 57.0 133 44.0	1
TUKTOYAKTUK	ADGO	5
TUKTOYAKTUK	ANGASAK	1
TUKTOYAKTUK	EAST BAILLIE	14
TUKTOYAKTUK	INUVIK	10
TUKTOYAKTUK	ITİYOK	1
TUKTOYAKTUK	KIDLUIT	1
TUKTOYAKTUK	KOMAKUK	1
TUKTOYAKTUK	KUGMALLIT	1
TUKTOYAKTUK	NICHOLSON	1
TUKTOYAKTUK	PULLEN ISLAND	1
WEST ATKINSON	ALERK	1
TOTAL NUMBER OF TRIPS		370

VESSEL ACTIVITIES - SEPTEMBER

END POINT 1	END POINT 2	TRIPS
69 56.0 133 19.0	70 15.0 134 20.0	1
69 56.0 133 19.0	70 17.0 134 12.0	1
69 56.0 133 19.0	AMAULIGAK F-24	7
69 57.0 133 19.0	AMAULIGAK F-24	3
70 10.0 134 32.0	70 11.0 137 6.00	1
70 10.0 134 32.0	70 21.0 141 0.00	1
70 11.0 137 6.00	70 21.0 141 0.00	1
70 15.0 134 20.0	70 4.00 133 18.0	1
70 17.0 134 12.0	70 2.00 133 18.0	1
70 19.0 140 56.0	AMAULIGAK F-24	1
70 2.00 133 18.0	AMAULIGAK F-24	1
70 25.0 133 43.0	70 45.0 129 9.00	1
70 30.0 127 0.0	EAST BAILLIE	3
70 35.0 129 29.0	69 57.0 133 19.0	1
70 4.00 133 18.0	AMAULIGAK F-24	2
70 41.0 127 53.0	70 35.0 127 0.0	1
70 43.0 130 36.0	EAST BAILLIE	1
70 45.0 127 3.00	70 35.0 129 29.0	1
70 45.0 129 9.00	70 41.0 127 53.0	1
ALASKA	MCKINLEY BAY	6
ALASKA	TUKTOYAKTUK	7
AMAULIGAK F-24	70 10.0 134 32.0	3
AMAULIGAK F-24	70 2.00 133 20.0	3
AMAULIGAK F-24	70 25.0 133 43.0	1
AMAULIGAK F-24	STOKES POINT	2
ARNAK	KAUBVIK	5
ARNAK	TUKTOYAKTUK	8
EAST BAILLIE	TUKTOYAKTUK	15
HERSCHEL BASIN	TUKTOYAKTUK	1
ISSIGAK	KAUBVIK	52
KAUBVIK	MINUK	20
KAUBVIK	NIPTERK	2
KAUBVIK	TUKTOYAKTUK	30
KIDLUIT	KITTIGAZUIT	1
KITTIGAZUIT	TUKTOYAKTUK	1
MCKINLEY BAY	TUKTOYAKTUK	14
MINUK	TUKTOYAKTUK	4
NICHOLSON	EAST BAILLIE	1
PULLEN ISLAND	KIDLUIT	1

VESSEL ACTIVITIES - SEPTEMBER (continued)

END POINT 1	END POINT 2	TRIPS
PULLEN ISLAND	STOKES POINT	1
STOKES POINT	TUKTOYAKTUK	1
TUKTOYAKTUK	69 56.0 133 19.0	3
TUKTOYAKTUK	70 43.0 130 36.0	1
TUKTOYAKTUK	ALERK	2
TUKTOYAKTUK	AMAILIGAK F-24	24
TUKTOYAKTUK	ANGASAK	2
TUKTOYAKTUK	INUVIK	3
TUKTOYAKTUK	WARREN POINT	2
TOTAL NUMBER OF TRIPS		246

VESSEL ACTIVITIES - OCTOBER

END POINT 1	END POINT 2	TRIPS
69 56.0 133 19.0	70 28.0 132 50.0	2
69 56.0 133 19.0	70 47.0 131 44.0	2
69 56.0 133 19.0	MCKINLEY BAY	2
70 2.00 133 20.0	70 31.0 131 36.0	1
70 26.0 130 15.0	TUKTOYAKTUK	1
70 28.0 132 50.0	TUKTOYAKTUK	2
70 31.0 127 31.0	70 25.0 127 0.00	1
70 31.0 131 36.0	70 49.0 131 42.0	1
70 35.0 127 29.0	70 30.0 127 0.00	1
70 35.0 127 29.0	TUKTOYAKTUK	1
70 37.0 127 49.0	TUKTOYAKTUK	1
70 38.0 128 0.00	70 57.0 131 54.0	1
70 39.0 127 58.0	70 35.0 127 0.00	1
70 4.00 133 18.0	EAST BAILLIE	1
70 41.0 129 24.0	70 26.0 130 15.0	1
70 49.0 131 42.0	70 56.0 131 19.0	1
70 53.0 131 47.0	70 42.0 127 14.0	1
70 56.0 131 19.0	70 53.0 131 47.0	3
70 57.0 131 54.0	70 51.0 131 18.0	1
ALERK	WEST ATKINSON	1
AMERK	ALERK	1
ATKINSON POINT	70 39.0 127 58.0	1
AMAILIGAK I-65	MCKINLEY BAY	1
AMAILIGAK I-65	TUKTOYAKTUK	3
ISSERK	ITIVOK	1
ITIVOK	AMERK	1
KADLUK	NETSERK	1
KAUBVIK	ISSIGAK	2
KAUBVIK	KADLUK	1
KAUBVIK	NIPTERK	1
KAUBVIK	TUKTOYAKTUK	29
MCKINLEY BAY	70 27.0 127 2.00	1
NETSERK	KAUBVIK	1
NIPTERK	ISSERK	1
TUKTOYAKTUK	69 56.0 133 19.0	2
TUKTOYAKTUK	70 31.0 127 31.0	1
TUKTOYAKTUK	ATKINSON POINT	1
WEST ATKINSON	TUKTOYAKTUK	1

TOTAL NUMBER OF TRIPS

76

VESSEL ACTIVITIES - JULY 1 - 10

END POINT 1	END POINT 2	TRIPS
69 32.0 138 55.0	69 17.0 137 24.0	1
AAGNERK	69 18.0 137 23.0	1
AAGNERK	PITSIULAK	2
AMAILIGAK I-65	AAGNERK	1
HAVIK	MCKINLEY BAY	1
HERSCHEL BASIN	69 18.0 137 24.0	1
HERSCHEL BASIN	AAGNERK	2
HERSCHEL BASIN	AMAILIGAK I-65	1
TUKTOYAKTUK	AMAILIGAK I-65	1
TUKTOYAKTUK	INUVIK	3
TUKTOYAKTUK	MCKINLEY BAY	3
TOTAL NUMBER OF TRIPS		17

VESSEL ACTIVITIES - JULY 11 - 21

END POINT 1	END POINT 2	TRIPS
69 17.0 137 24.0	70 8.00 135 57.0	1
69 18.0 137 23.0	AMAULIGAK I-65	1
69 18.0 137 24.0	AMAULIGAK I-65	1
69 18.0 137 24.0	HERSCHEL BASIN	2
69 47.0 137 11.0	69 58.0 133 21.0	1
69 49.9 135 41.5	69 50.5 137 5.50	1
69 50.5 137 5.50	AMAULIGAK I-65	1
70 10.0 134 32.0	AMAULIGAK I-65	3
70 11.0 133 56.0	70 14.0 133 48.0	1
70 14.0 133 48.0	70 8.00 134 1.00	1
70 2.00 134 51.0	TUKTOYAKTUK	1
70 4.90 133 56.5	69 57.0 133 30.0	2
70 45.5 133 51.1	69 49.9 135 41.5	1
70 8.00 134 1.00	70 3.00 133 58.0	1
70 8.00 135 57.0	70 11.0 133 56.0	1
AAGNERK	69 47.0 137 11.0	1
AAGNERK	HERSCHEL BASIN	1
AAGNERK	TARSIUT	4
AAGNERK	TUKTOYAKTUK	2
ADGO	ARNAK	3
ADGO	TUKTOYAKTUK	3
ALASKA	MCKINLEY BAY	1
ARNAK	PULLEN ISLAND	2
BAR C	ADGO	1
AMAULIGAK I-65	70 10.0 134 32.0	2
AMAULIGAK I-65	70 39.0 133 49.0	2
AMAULIGAK I-65	70 4.90 133 56.5	1
AMAULIGAK I-65	70 45.5 133 51.1	1
AMAULIGAK I-65	AAGNERK	2
AMAULIGAK I-65	HERSCHEL BASIN	1
HAVIK	70 18.0 130 24.0	1
HERSCHEL BASIN	70 2.00 134 51.0	1
MCKINLEY BAY	HAVIK	4
PULLEN ISLAND	ADGO	1
PULLEN ISLAND	TUKTOYAKTUK	1
TUKTOYAKTUK	ARNAK	12
TUKTOYAKTUK	BAR C	1
TUKTOYAKTUK	HANSON	2
TUKTOYAKTUK	INUVIK	1
TUKTOYAKTUK	MCKINLEY BAY	6

TOTAL NUMBER OF TRIPS

79

VESSEL ACTIVITIES - JULY 22 - 31

END POINT 1.	END POINT 2	TRIPS
69 56.0 133 21.0	70 3.00 133 31.0	1
69 58.0 133 14.0	AMAULIGAK I-65	2
69 58.0 133 21.0	AMAULIGAK I-65	1
70 11.0 133 29.0	69 58.0 133 14.0	1
70 11.0 133 37.0	70 11.0 133 46.0	1
70 11.0 133 46.0	70 8.00 133 36.0	1
70 3.00 133 31.0	70 0.00 133 24.0	1
70 3.00 133 58.0	70 4.00 133 48.0	1
70 4.00 133 48.0	70 6.00 134 13.0	1
70 4.90 133 56.5	AMAULIGAK I-65	1
70 6.00 134 13.0	70 10.0 134 32.0	1
70 8.00 133 36.0	70 11.0 133 29.0	1
AMERK	TUKTOYAKTUK	1
ARNAK	ADGO	2
ARNAK	ISSIGAK	1
ARNAK	KAUBVIK	6
ARNAK	MINUK	5
AMAULIGAK I-65	69 56.0 133 21.0	1
AMAULIGAK I-65	69 58.6 133 18.3	2
AMAULIGAK I-65	70 10.0 134 32.0	4
AMAULIGAK I-65	70 11.0 133 37.0	1
AMAULIGAK I-65	70 31.0 132 13.0	1
EAST BAILLIE	MCKINLEY BAY	1
EAST BAILLIE	TUKTOYAKTUK	2
HAVIK	70 31.0 132 13.0	5
HAVIK	70 7.00 131 28.0	2
HAVIK	ALASKA	1
ISSIGAK	MINUK	1
KAUBVIK	AMERK	1
KAUBVIK	ISSIGAK	8
KAUBVIK	MINUK	6
MCKINLEY BAY	ALASKA	1
MCKINLEY BAY	TUKTOYAKTUK	9
MINUK	KAUBVIK	2
MINUK	NIPTERK	1
MINUK	TUKTOYAKTUK	4
NIPTERK	ARNAK	2
NIPTERK	KAUBVIK	45
TUKTOYAKTUK	ADGO	2
TUKTOYAKTUK	ARNAK	14
TUKTOYAKTUK	AMAULIGAK I-65	7
TUKTOYAKTUK	HERSCHEL BASIN	2
TUKTOYAKTUK	TAGLU	2

TOTAL NUMBER OF TRIPS

155

VESSEL ACTIVITIES - AUGUST 1 - 10

END POINT 1	END POINT 2	TRIPS
69 55.0 133 21.0	TUKTOYAKTUK	1
70 0.00 133 24.0	70 2.00 133 40.0	1
70 2.00 133 40.0	69 55.0 133 21.0	1
70 24.0 131 58.0	HAVIK	1
70 31.0 132 13.0	70 24.0 131 58.0	3
ADGO	PELLY ISLAND	1
ALERK	NIPTERK	1
AMERK	ARNAK	1
ARNAK	ITIIYOK	2
ARNAK	KANNERK	1
ARNAK	MASON BAY	1
ARNAK	MINUK	2
ARNAK	TUKTOYAKTUK	9
AMAULIGAK I-65	70 12.0 134 15.8	2
AMAULIGAK I-65	AAGNERK	2
AMAULIGAK I-65	KRINGALAK	2
AMAULIGAK I-65	TARSIUT	3
AMAULIGAK I-65	TUKTOYAKTUK	2
HAVIK	70 31.0 132 13.0	3
HAVIK	AMAULIGAK I-65	1
ISSERK	ISSUNGNAK	1
ISSUNGNAK	ITIIYOK	1
ITIIYOK	KAUBVIK	1
KANNERK	WEST ATKINSON	1
KAUBVIK	AMERK	1
KAUBVIK	ARNAK	3
KAUBVIK	ISSERK	1
KAUBVIK	ISSIGAK	8
KAUBVIK	KADLUK	2
KOMAKUK	STOKES POINT	1
KUGMALLIT	ARNAK	1
MASON BAY	TUKTOYAKTUK	1
MCKINLEY BAY	ALASKA	1
MINUK	KAUBVIK	2
MINUK	TUKTOYAKTUK	27
PELLY ISLAND	ARNAK	1
SHINGLE POINT	TUKTOYAKTUK	1
STOKES POINT	SHINGLE POINT	1
TARSIUT	KRINGALAK	1
TUKTOYAKTUK	ADGO	2
TUKTOYAKTUK	ALASKA	3

VESSEL ACTIVITIES - AUGUST 1 - 10 (continued)

END POINT 1	END POINT 2	TRIPS
TUKTOYAKTUK	EAST BAILLIE	5
TUKTOYAKTUK	ITIIYOK	1
TUKTOYAKTUK	KAUBVIK	1
TUKTOYAKTUK	KOMAKUK	1
TUKTOYAKTUK	KUGMALLIT	1
TUKTOYAKTUK	MCKINLEY BAY	7
WEST ATKINSON	ALERK	1
TOTAL NUMBER OF TRIPS		110

VESSEL ACTIVITIES - AUGUST 11 - 21

END POINT 1	END POINT 2	TRIPS
70 9.00 132 46.0	70 13.0 135 6.00	4
ADGO	TAGLU	1
ALASKA	HAVIK	1
ANGASAK	MCKINLEY BAY	1
ARNAK	KAUBVIK	5
AMAULIGAK I-65	HERSCHEL BASIN	1
AMAULIGAK I-65	TARSIUT	2
AMAULIGAK I-65	TUKTOYAKTUK	6
HAVIK	70 33.0 131 27.0	2
HAVIK	70 9.00 132 46.0	4
HAVIK	AMAULIGAK I-65	1
HAVIK	TUKTOYAKTUK	7
HERSCHEL BASIN	KRINGALAK	1
ITIIYOK	ARNAK	9
KRINGALAK	AMAULIGAK I-65	7
MCKINLEY BAY	HAVIK	5
MCKINLEY BAY	TUKTOYAKTUK	11
MINUK	ARNAK	1
TAGLU	TUKTOYAKTUK	1
TARSIUT	KRINGALAK	1
TARSIUT	MCKINLEY BAY	1
TUKTOYAKTUK	69 49.0 133 45.0	4
TUKTOYAKTUK	ADGO	3
TUKTOYAKTUK	ALASKA	2
TUKTOYAKTUK	ANGASAK	1
TUKTOYAKTUK	ARNAK	37
TUKTOYAKTUK	EAST BAILLIE	5
TUKTOYAKTUK	INUVIK	5
TUKTOYAKTUK	KAUBVIK	2
TUKTOYAKTUK	MINUK	2
	TOTAL NUMBER OF TRIPS	133

VESSEL ACTIVITIES - AUGUST 22 - 31

END POINT 1	END POINT 2	TRIPS
69 57.0 133 44.0	70 0.00 134 0.00	1
70 0.00 134 0.00	71 4.00 127 24.0	1
70 13.0 135 6.00	70 19.0 136 9.00	4
70 19.0 136 9.00	ALASKA	5
ARNAK	KAUBVIK	4
ARNAK	TUKTOYAKTUK	20
AMAILIGAK I-65	70 10.0 137 24.0	3
HANSON	PULLEN ISLAND	1
HAVIK	70 36.0 131 40.0	1
HAVIK	MCKINLEY BAY	4
ISSIGAK	KAUBVIK	36
KAUBVIK	MINUK	2
KAUBVIK	TUKTOYAKTUK	5
KIDLUIT	HANSON	1
KRINGALAK	AMAILIGAK I-65	2
KRINGALAK	HERSCHEL BASIN	1
KRINGALAK	TUKTOYAKTUK	2
MCKINLEY BAY	ALASKA	2
MCKINLEY BAY	TUKTOYAKTUK	4
TUKTOYAKTUK	69 57.0 133 44.0	1
TUKTOYAKTUK	AMAILIGAK I-65	4
TUKTOYAKTUK	EAST BAILLIE	5
TUKTOYAKTUK	HAVIK	2
TUKTOYAKTUK	INUVIK	5
TUKTOYAKTUK	KIDLUIT	1
TUKTOYAKTUK	NICHOLSON	1
TUKTOYAKTUK	PULLEN ISLAND	1

TOTAL NUMBER OF TRIPS

120

VESSEL ACTIVITIES - SEPTEMBER 1 - 10

END POINT 1	END POINT 2	TRIPS
ALASKA	MCKINLEY BAY	5
ALASKA	TUKTOYAKTUK	3
ARNAK	KAUBVIK	4
ARNAK	TUKTOYAKTUK	6
HERSCHEL BASIN	TUKTOYAKTUK	1
ISSIGAK	KAUBVIK	50
KAUBVIK	MINUK	4
KAUBVIK	TUKTOYAKTUK	8
KIDLUIT	KITTIGAZUIT	1
KITTIGAZUIT	TUKTOYAKTUK	1
MCKINLEY BAY	TUKTOYAKTUK	8
NICHOLSON	EAST BAILLIE	1
PULLEN ISLAND	KIDLUIT	1
PULLEN ISLAND	STOKES POINT	1
STOKES POINT	TUKTOYAKTUK	1
TUKTOYAKTUK	ALERK	2
TUKTOYAKTUK	AMAULIGAK I-65	5
TUKTOYAKTUK	EAST BAILLIE	6
TUKTOYAKTUK	INUVIK	1
TUKTOYAKTUK	WARREN POINT	2

TOTAL NUMBER OF TRIPS

111

VESSEL ACTIVITIES - SEPTEMBER 11 - 20

END POINT 1	END POINT 2	TRIPS
69 57.0 133 19.0	AMAULIGAK I-65	3
70 10.0 134 32.0	70 11.0 137 6.00	1
70 10.0 134 32.0	70 21.0 141 0.00	1
70 11.0 137 6.00	70 21.0 141 0.00	1
70 19.0 140 56.0	AMAULIGAK I-65	1
70 35.0 129 29.0	69 57.0 133 19.0	1
70 45.0 127 3.00	70 35.0 129 29.0	1
ARNAK	TUKTOYAKTUK	1
AMAULIGAK I-65	69 56.0 133 19.0	3
AMAULIGAK I-65	70 10.0 134 32.0	3
KAUBVIK	ISSIGAK	2
KAUBVIK	NIPTERK	2
KAUBVIK	TUKTOYAKTUK	5
MINUK	KAUBVIK	14
TUKTOYAKTUK	ALASKA	4
TUKTOYAKTUK	AMAULIGAK I-65	10
TUKTOYAKTUK	EAST BAILLIE	3
TUKTOYAKTUK	INUVIK	2
TUKTOYAKTUK	MCKINLEY BAY	5
TUKTOYAKTUK	MINUK	4

TOTAL NUMBER OF TRIPS

67

VESSEL ACTIVITIES - SEPTEMBER 21 - 30

END POINT 1	END POINT 2	TRIPS
69 56.0 133 19.0	70 15.0 134 20.0	1
69 56.0 133 19.0	70 17.0 134 12.0	1
69 56.0 133 19.0	AMAULIGAK I-65	3
70 15.0 134 20.0	70 4.00 133 18.0	1
70 17.0 134 12.0	70 2.00 133 18.0	1
70 2.00 133 18.0	AMAULIGAK I-65	1
70 25.0 133 43.0	70 45.0 129 9.00	1
70 4.00 133 18.0	AMAULIGAK I-65	2
70 43.0 130 36.0	EAST BAILLIE	1
70 45.0 129 9.00	70 41.0 127 53.0	1
ARNAK	KAUBVIK	1
AMAULIGAK I-65	69 56.0 133 19.0	1
AMAULIGAK I-65	70 2.00 133 20.0	3
AMAULIGAK I-65	70 25.0 133 43.0	1
AMAULIGAK I-65	STOKES POINT	2
KAUBVIK	MINUK	2
KAUBVIK	TUKTOYAKTUK	17
MCKINLEY BAY	ALASKA	1
TUKTOYAKTUK	69 56.0 133 19.0	3
TUKTOYAKTUK	70 43.0 130 36.0	1
TUKTOYAKTUK	ANGASAK	2
TUKTOYAKTUK	ARNAK	1
TUKTOYAKTUK	AMAULIGAK I-65	8
TUKTOYAKTUK	EAST BAILLIE	6
TUKTOYAKTUK	MCKINLEY BAY	1
TOTAL NUMBER OF TRIPS		63

Appendix A-3 Aircraft Activities (1986)

Note: There were aircraft activities for all 1986 reporting periods.

AIRCRAFT ACTIVITIES - JUNE

END POINT 1	END POINT 2	TRIPS
AAGNERK	AMAILIGAK I-65	6
AAGNERK	GARRY ISLAND	1
AAGNERK	HERSCHEL BASIN	13
AAGNERK	HOOPER ISLAND	3
AAGNERK	KAY POINT	3
AAGNERK	STOKES POINT	1
ADGO	HANSON	1
ADGO	MINUK	4
ARNAK	AMAILIGAK I-65	9
ARNAK	HANSON	81
ARNAK	INUVIK	4
ARNAK	MINUK	19
ARNAK	NALLUK	3
ARNAK	PULLEN ISLAND	10
ATKINSON POINT	MCKINLEY BAY	25
BAR C	HANSON	1
AMAILIGAK I-65	GARRY ISLAND	3
GARRY ISLAND	ADGO	2
GARRY ISLAND	HANSON	1
GARRY ISLAND	HERSCHEL BASIN	5
GARRY ISLAND	HOOPER ISLAND	7
GARRY ISLAND	MINUK	3
GARRY ISLAND	PULLEN ISLAND	1
GARRY ISLAND	STOKES POINT	3
HERSCHEL BASIN	AMAILIGAK I-65	1
HERSCHEL BASIN	HOOPER ISLAND	1
HOOPER ISLAND	AMAILIGAK I-65	2
HOOPER ISLAND	MCKINLEY BAY	1
HOOPER ISLAND	PELLY ISLAND	2
HOOPER ISLAND	PULLEN ISLAND	2
INUVIK	AAGNERK	1
INUVIK	HANSON	1

AIRCRAFT ACTIVITIES - JUNE (continued)

END POINT 1	END POINT 2	TRIPS
INUVIK	PAULINE COVE	4
KAY POINT	HERSCHEL BASIN	5
KAY POINT	HOOPER ISLAND	2
MCKINLEY BAY	AMAILIGAK I-65	1
MINUK	HANSON	3
PELLY ISLAND	GARRY ISLAND	5
PULLEN ISLAND	HANSON	1
PULLEN ISLAND	MINUK	9
STOKES POINT	HERSCHEL BASIN	4
TUKTOYAKTUK	AAGNERK	50
TUKTOYAKTUK	ADGO	7
TUKTOYAKTUK	ARNAK	138
TUKTOYAKTUK	ATKINSON POINT	6
TUKTOYAKTUK	DALHOUSIE AREA	2
TUKTOYAKTUK	AMAILIGAK I-65	178
TUKTOYAKTUK	GARRY ISLAND	19
TUKTOYAKTUK	HANSON	111
TUKTOYAKTUK	HERSCHEL BASIN	79
TUKTOYAKTUK	HOOPER ISLAND	28
TUKTOYAKTUK	KAY POINT	4
TUKTOYAKTUK	MINUK	46
TUKTOYAKTUK	PAULINE COVE	28
TUKTOYAKTUK	PELLY ISLAND	2
TUKTOYAKTUK	PULLEN ISLAND	3
TOTAL NUMBER OF TRIPS		958

AIRCRAFT ACTIVITIES - JULY

END POINT 1	END POINT 2	TRIPS
69 17.0 137 24.0	AAGNERK	5
69 17.0 137 24.0	HOOPER ISLAND	4
69 17.0 137 24.0	KAY POINT	1
69 17.0 137 24.0	TUKTOYAKTUK	21
70 11.0 133 56.0	AMAILIGAK I-65	1
70 14.0 133 48.0	AMAILIGAK I-65	1
70 18.0 130 24.0	MCKINLEY BAY	1
70 8.00 134 1.00	AMAILIGAK I-65	2
AAGNERK	70 3.00 133 58.0	2
AAGNERK	AMAILIGAK I-65	14
AAGNERK	HERSCHEL BASIN	11
ADGO	ARNAK	5
ADGO	GARRY ISLAND	1
ADGO	KAUBVIK	1
ADGO	MINUK	11
ADGO	NIPTERK	2
AMAILIGAK F-24	70 10.0 134 32.0	2
AMAILIGAK F-24	70 3.00 133 58.0	5
AMAILIGAK F-24	HOOPER ISLAND	1
ARNAK	HANSON	4
ARNAK	ISSIGAK	1
ARNAK	KAUBVIK	3
ARNAK	MCKINLEY BAY	1
ARNAK	MINUK	23
ARNAK	NIPTERK	4
ARNAK	PELLY ISLAND	3
ARNAK	PULLEN ISLAND	10
ATKINSON POINT	MCKINLEY BAY	16
GARRY ISLAND	AAGNERK	2
GARRY ISLAND	HERSCHEL BASIN	1
GARRY ISLAND	HOOPER ISLAND	2
HAVIK	HOOPER ISLAND	1
HAVIK	MCKINLEY BAY	5
HERSCHEL BASIN	STOKES POINT	7
HOOPER ISLAND	70 6.00 134 13.0	1
HOOPER ISLAND	AAGNERK	2
HOOPER ISLAND	AMAILIGAK I-65	2
HOOPER ISLAND	HERSCHEL BASIN	2
HOOPER ISLAND	NIPTERK	1
HOOPER ISLAND	PULLEN ISLAND	2
INUVIK	AAGNERK	1
INUVIK	ARNAK	4
ITIVOK	PULLEN ISLAND	1
KAUBVIK	PELLY ISLAND	3
KAUBVIK	PULLEN ISLAND	3
KAY POINT	STOKES POINT	1

AIRCRAFT ACTIVITIES - JULY (continued)

END POINT 1	END POINT 2	TRIPS
MINUK	BAR C	1
MINUK	HANSON	1
MINUK	ISSIGAK	1
MINUK	ITIIYOK	1
MINUK	KAUBVIK	2
MINUK	PELLY ISLAND	1
MINUK	PITT ISLAND	2
MINUK	PULLEN ISLAND	8
NIPTERK	PELLY ISLAND	4
PELLY ISLAND	HOOPER ISLAND	1
PELLY ISLAND	PULLEN ISLAND	1
PULLEN ISLAND	TUKTOYAKTUK	13
STOKES POINT	69 17.0 137 24.0	1
STOKES POINT	AAGNERK	2
STOKES POINT	GARRY ISLAND	1
TAGLU	GARRY ISLAND	1
TUKTOYAKTUK	70 10.0 134 32.0	4
TUKTOYAKTUK	70 11.0 133 56.0	1
TUKTOYAKTUK	70 14.0 133 48.0	1
TUKTOYAKTUK	70 18.0 130 24.0	1
TUKTOYAKTUK	70 3.00 133 58.0	5
TUKTOYAKTUK	70 4.00 133 48.0	2
TUKTOYAKTUK	70 6.00 134 13.0	1
TUKTOYAKTUK	70 8.00 134 1.00	2
TUKTOYAKTUK	AAGNERK	53
TUKTOYAKTUK	ADGO	18
TUKTOYAKTUK	AMAILIGAK I-65	120
TUKTOYAKTUK	ANGASAK	4
TUKTOYAKTUK	ARNAK	210
TUKTOYAKTUK	ATKINSON POINT	6
TUKTOYAKTUK	GARRY ISLAND	10
TUKTOYAKTUK	HANSON	5
TUKTOYAKTUK	HAVIK	44
TUKTOYAKTUK	HERSCHEL BASIN	21
TUKTOYAKTUK	HOOPER ISLAND	23
TUKTOYAKTUK	KAUBVIK	9
TUKTOYAKTUK	KAY POINT	2
TUKTOYAKTUK	MINUK	57
TUKTOYAKTUK	NIPTERK	10
TUKTOYAKTUK	PELLY ISLAND	4
TUKTOYAKTUK	PITT ISLAND	5
TUKTOYAKTUK	TAGLU	1

TOTAL NUMBER OF TRIPS

860

AIRCRAFT ACTIVITIES - AUGUST

END POINT 1	END POINT 2	TRIPS
70 10.0 134 32.0	AMAULIGAK I-65	2
70 10.0 134 32.0	KRINGALAK	1
70 10.0 134 32.0	TARSIUT	1
AAGNERK	70 10.0 134 32.0	1
AAGNERK	AMAULIGAK I-65	7
ADGO	MINUK	6
ADGO	PULLEN ISLAND	1
ADGO	TAGLU	2
AMAULIGAK F-24	69 55.0 133 21.0	2
AMAULIGAK F-24	70 0.00 133 24.0	1
AMAULIGAK F-24	70 10.0 134 32.0	24
AMAULIGAK F-24	AAGNERK	5
AMAULIGAK F-24	AMAULIGAK I-65	8
AMAULIGAK F-24	HOOPER ISLAND	1
AMAULIGAK F-24	INUVIK	1
AMAULIGAK F-24	KRINGALAK	9
ARNAK	AMAULIGAK I-65	1
ARNAK	ANGASAK	2
ARNAK	HANSON	4
ARNAK	INUVIK	1
ARNAK	ISSIGAK	3
ARNAK	KAUBVIK	19
ARNAK	MINUK	2
ARNAK	NIPTERK	1
ARNAK	PITT ISLAND	1
ARNAK	PULLEN ISLAND	3
ATKINSON POINT	AMAULIGAK F-24	1
BAR C	MINUK	1
GARRY ISLAND	HOOPER ISLAND	1
HANSON	MINUK	1
HENDRICKSON	TUKTOYAKTUK	3
HOOPER ISLAND	HENDRICKSON	1
HOOPER ISLAND	STOKES POINT	4
ITIVOK	KAUBVIK	1
KAUBVIK	GARRY ISLAND	2
KAUBVIK	ISSIGAK	2
KAUBVIK	PULLEN ISLAND	4
KRINGALAK	AMAULIGAK I-65	5
KRINGALAK	STOKES POINT	1
KRINGALAK	TARSIUT	2
MCKINLEY BAY	ATKINSON POINT	4
MCKINLEY BAY	HAVIK	16
MINUK	ISSIGAK	1
MINUK	KAUBVIK	6
NIPTERK	KAUBVIK	1
PELLE ISLAND	PITT ISLAND	2
PELLE ISLAND	PULLEN ISLAND	3

AIRCRAFT ACTIVITIES - AUGUST (continued)

END POINT 1	END POINT 2	TRIPS
TUKTOYAKTUK	69 55.0 133 21.0	2
TUKTOYAKTUK	70 0.00 133 24.0	3
TUKTOYAKTUK	70 10.0 134 32.0	19
TUKTOYAKTUK	AAGNERK	19
TUKTOYAKTUK	ADGO	15
TUKTOYAKTUK	AMAILIGAK F-24	15
TUKTOYAKTUK	AMAILIGAK I-65	123
TUKTOYAKTUK	ANGASAK	2
TUKTOYAKTUK	ARNAK	165
TUKTOYAKTUK	ATKINSON POINT	8
TUKTOYAKTUK	BAILLIE ISLAND	1
TUKTOYAKTUK	GARRY ISLAND	5
TUKTOYAKTUK	HANSON	9
TUKTOYAKTUK	HAVIK	54
TUKTOYAKTUK	HOOPER ISLAND	7
TUKTOYAKTUK	ISSIGAK	2
TUKTOYAKTUK	ITIVOK	3
TUKTOYAKTUK	KAUBVIK	47
TUKTOYAKTUK	KAY POINT	2
TUKTOYAKTUK	KRINGALAK	42
TUKTOYAKTUK	MINUK	17
TUKTOYAKTUK	PAULINE COVE	1
TUKTOYAKTUK	PELLE ISLAND	1
TUKTOYAKTUK	PITT ISLAND	7
TUKTOYAKTUK	PULLEN ISLAND	7
TUKTOYAKTUK	STOKES POINT	1
TUKTOYAKTUK	TAGLU	4
TUKTOYAKTUK	TARSIUT	3
TUKTOYAKTUK	TUK BUOY	2
TOTAL NUMBER OF TRIPS		757

AIRCRAFT ACTIVITIES - SEPTEMBER

END POINT 1	END POINT 2	TRIPS
69 56.0 133 19.0	AMAULIGAK F-24	22
70 10.0 134 32.0	AMAULIGAK I-65	1
70 10.0 134 32.0	HOOPER ISLAND	1
70 41.0 127 53.0	70 2.00 133 18.0	1
ADGO	ARNAK	1
ADGO	KAUBVIK	2
ADGO	MINUK	1
ADGO	TAGLU	1
AMAULIGAK F-24	70 10.0 134 32.0	18
AMAULIGAK F-24	70 2.00 133 18.0	16
AMAULIGAK F-24	AMAULIGAK I-65	5
AMAULIGAK F-24	ATKINSON POINT	1
AMAULIGAK F-24	TUK BUOY	5
ARNAK	KAUBVIK	1
HANSON	PULLEN ISLAND	1
HOOPER ISLAND	GARRY ISLAND	1
KAUBVIK	BAR C	1
KAUBVIK	GARRY ISLAND	4
KAUBVIK	HANSON	1
KAUBVIK	ISSIGAK	1
KAUBVIK	MINUK	60
KAUBVIK	PULLEN ISLAND	14
KAY POINT	GARRY ISLAND	1
MCKINLEY BAY	ATKINSON POINT	2
MINUK	PULLEN ISLAND	6
PULLEN ISLAND	70 2.00 133 18.0	1
PULLEN ISLAND	GARRY ISLAND	1
PULLEN ISLAND	ITIVOK	1
PULLEN ISLAND	PELLY ISLAND	2
STOKES POINT	PAULINE COVE	1
TUK BUOY	70 10.0 134 32.0	2
TUK BUOY	AMAULIGAK I-65	3
TUKTOYAKTUK	69 56.0 133 19.0	36
TUKTOYAKTUK	70 10.0 134 32.0	18
TUKTOYAKTUK	70 2.00 133 18.0	28
TUKTOYAKTUK	70 41.0 127 53.0	3
TUKTOYAKTUK	ADGO	3
TUKTOYAKTUK	AMAULIGAK F-24	11
TUKTOYAKTUK	AMAULIGAK I-65	100
TUKTOYAKTUK	ARNAK	20
TUKTOYAKTUK	ATKINSON POINT	2
TUKTOYAKTUK	GARRY ISLAND	7

AIRCRAFT ACTIVITIES - SEPTEMBER (continued)

END POINT 1	END POINT 2	TRIPS
TUKTOYAKTUK	HANSON	10
TUKTOYAKTUK	HOOPER ISLAND	8
TUKTOYAKTUK	ISSIGAK	1
TUKTOYAKTUK	ITIVOK	1
TUKTOYAKTUK	KAUBVIK	103
TUKTOYAKTUK	KAY POINT	1
TUKTOYAKTUK	MINUK	16
TUKTOYAKTUK	PAULINE COVE	1
TUKTOYAKTUK	PITT ISLAND	2
TUKTOYAKTUK	PULLEN ISLAND	8
TUKTOYAKTUK	STOKES POINT	10
TUKTOYAKTUK	TAGLU	1
TUKTOYAKTUK	TUK BUOY	20
TOTAL NUMBER OF TRIPS		591

AIRCRAFT ACTIVITIES - OCTOBER

END POINT 1	END POINT 2	TRIPS
70 42.0 127 14.0	70 40.0 127 0.00	1
70 56.0 131 19.0	70 25.0 127 0.00	1
AMAULIGAK I-65	70 2.00 133 18.0	3
GARRY ISLAND	PITT ISLAND	3
GARRY ISLAND	PULLEN ISLAND	5
GARRY ISLAND	STOKES POINT	1
INUVIK	GARRY ISLAND	4
INUVIK	KAUBVIK	29
INUVIK	PULLEN ISLAND	3
KAUBVIK	GARRY ISLAND	3
KAUBVIK	NIPTERK	5
KAY POINT	PAULINE COVE	1
KAY POINT	STOKES POINT	1
PULLEN ISLAND	KAUBVIK	7
STOKES POINT	PAULINE COVE	5
TUKTOYAKTUK	70 2.00 133 18.0	9
TUKTOYAKTUK	70 42.0 127 14.0	2
TUKTOYAKTUK	70 47.0 131 44.0	2
TUKTOYAKTUK	70 49.0 131 42.0	2
TUKTOYAKTUK	70 56.0 131 19.0	7
TUKTOYAKTUK	AMAULIGAK I-65	7
TUKTOYAKTUK	GARRY ISLAND	7
TUKTOYAKTUK	HANSON	2
TUKTOYAKTUK	HOOPER ISLAND	6
TUKTOYAKTUK	KAUBVIK	98
TUKTOYAKTUK	KAY POINT	2
TUKTOYAKTUK	NIPTERK	3
TUKTOYAKTUK	PITT ISLAND	1
TUKTOYAKTUK	PULLEN ISLAND	5
TUKTOYAKTUK	STOKES POINT	3
	TOTAL NUMBER OF TRIPS	229

AIRCRAFT ACTIVITIES - NOVEMBER

END POINT 1	END POINT 2	TRIPS
GARRY ISLAND	KAUBVIK	7
GARRY ISLAND	TUKTOYAKTUK	1
INUVIK	GARRY ISLAND	4
INUVIK	KAUBVIK	79
INUVIK	NIPTERK	1
INUVIK	PULLEN ISLAND	2
KAUBVIK	NIPTERK	1
KAUBVIK	PULLEN ISLAND	1
TOTAL NUMBER OF TRIPS		96

AIRCRAFT ACTIVITIES - DECEMBER

END POINT 1	END POINT 2	TRIPS
INUVIK	KAUBVIK	91
TUKTOYAKTUK	KAUBVIK	1
TOTAL NUMBER OF TRIPS		92

AIRCRAFT ACTIVITIES - JULY 1 - 10

END POINT 1	END POINT 2	TRIPS
69 17.0 137 24.0	KAY POINT	1
69 17.0 137 24.0	TUKTOYAKTUK	6
AAGNERK	69 17.0 137 24.0	1
ARNAK	ADGO	1
ARNAK	MCKINLEY BAY	1
ARNAK	MINUK	12
ARNAK	PELLY ISLAND	1
ARNAK	PULLEN ISLAND	8
ATKINSON POINT	MCKINLEY BAY	7
GARRY ISLAND	AAGNERK	2
HERSCHEL BASIN	AAGNERK	8
HERSCHEL BASIN	STOKES POINT	5
HOOPER ISLAND	AMAILIGAK I-65	2
HOOPER ISLAND	NIPTERK	1
HOOPER ISLAND	PULLEN ISLAND	2
INUVIK	ARNAK	4
KAY POINT	STOKES POINT	1
MINUK	ADGO	2
MINUK	PELLY ISLAND	1
MINUK	PULLEN ISLAND	5
NIPTERK	ARNAK	1
NIPTERK	PELLY ISLAND	4
PELLY ISLAND	HOOPER ISLAND	1
PELLY ISLAND	PITT ISLAND	2
PITT ISLAND	MINUK	1
STOKES POINT	AAGNERK	2
TAGLU	GARRY ISLAND	1
TUKTOYAKTUK	69 17.0 137 24.0	7
TUKTOYAKTUK	AAGNERK	19
TUKTOYAKTUK	ADGO	3
TUKTOYAKTUK	ARNAK	52
TUKTOYAKTUK	ATKINSON POINT	1
TUKTOYAKTUK	AMAILIGAK I-65	44
TUKTOYAKTUK	GARRY ISLAND	3
TUKTOYAKTUK	HERSCHEL BASIN	10
TUKTOYAKTUK	KAY POINT	2
TUKTOYAKTUK	MINUK	15
TUKTOYAKTUK	NIPTERK	4
TUKTOYAKTUK	PELLY ISLAND	3
TUKTOYAKTUK	PITT ISLAND	3
TUKTOYAKTUK	PULLEN ISLAND	5
TUKTOYAKTUK	TAGLU	1

TOTAL NUMBER OF TRIPS

257

AIRCRAFT ACTIVITIES - JULY 11 - 21

END POINT 1	END POINT 2	TRIPS
69 17.0 137 24.0	AAGNERK	1
69 17.0 137 24.0	HOOPER ISLAND	1
70 11.0 133 56.0	AMAILIGAK I-65	2
70 18.0 130 24.0	MCKINLEY BAY	1
70 8.00 134 1.00	AMAILIGAK I-65	2
AAGNERK	69 17.0 137 24.0	3
AAGNERK	AMAILIGAK I-65	3
AAGNERK	HERSCHEL BASIN	3
ADGO	MINUK	2
ARNAK	ADGO	1
ARNAK	HANSON	3
ARNAK	KAUBVIK	1
ARNAK	MINUK	4
ATKINSON POINT	MCKINLEY BAY	5
AMAILIGAK I-65	70 3.00 133 58.0	3
AMAILIGAK I-65	HOOPER ISLAND	1
GARRY ISLAND	HERSCHEL BASIN	1
HERSCHEL BASIN	STOKES POINT	2
HOOPER ISLAND	69 17.0 137 24.0	3
HOOPER ISLAND	AAGNERK	2
HOOPER ISLAND	GARRY ISLAND	1
HOOPER ISLAND	HERSCHEL BASIN	2
INUVIK	AAGNERK	1
MCKINLEY BAY	HAVIK	1
MINUK	BAR C	1
MINUK	KAUBVIK	1
MINUK	PULLEN ISLAND	1
PELLY ISLAND	PULLEN ISLAND	1
PITT ISLAND	PELLY ISLAND	1
PULLEN ISLAND	MINUK	1
PULLEN ISLAND	TUKTOYAKTUK	3
STOKES POINT	69 17.0 137 24.0	1
STOKES POINT	GARRY ISLAND	1
TUKTOYAKTUK	69 17.0 137 24.0	8
TUKTOYAKTUK	70 11.0 133 56.0	1
TUKTOYAKTUK	70 14.0 133 48.0	1
TUKTOYAKTUK	70 18.0 130 24.0	1
TUKTOYAKTUK	70 3.00 133 58.0	1
TUKTOYAKTUK	70 8.00 134 1.00	2
TUKTOYAKTUK	AAGNERK	17

AIRCRAFT ACTIVITIES -JULY 11 - 21 (continued)

END POINT 1	END POINT 2	TRIPS
TUKTOYAKTUK	ADGO	3
TUKTOYAKTUK	ARNAK	75
TUKTOYAKTUK	ATKINSON POINT	3
TUKTOYAKTUK	AMAILIGAK I-65	39
TUKTOYAKTUK	GARRY ISLAND	3
TUKTOYAKTUK	HANSON	3
TUKTOYAKTUK	HAVIK	7
TUKTOYAKTUK	HERSCHEL BASIN	9
TUKTOYAKTUK	HOOPER ISLAND	14
TUKTOYAKTUK	MINUK	28
TUKTOYAKTUK	PITT ISLAND	1
TOTAL NUMBER OF TRIPS		276

AIRCRAFT ACTIVITIES - JULY 22 - 31

END POINT 1	END POINT 2	TRIPS
AAGNERK	70 3.00 133 58.0	2
AAGNERK	AMAILIGAK I-65	11
ADGO	ARNAK	3
ADGO	GARRY ISLAND	1
ADGO	KAUBVIK	1
ADGO	MINUK	7
ADGO	NIPTERK	2
ARNAK	HANSON	1
ARNAK	ISSIGAK	1
ARNAK	KAUBVIK	2
ARNAK	MINUK	7
ARNAK	NIPTERK	3
ARNAK	PELLY ISLAND	2
ARNAK	PULLEN ISLAND	2
ATKINSON POINT	MCKINLEY BAY	4
AMAILIGAK I-65	70 10.0 134 32.0	2
AMAILIGAK I-65	70 3.00 133 58.0	2
GARRY ISLAND	HOOPER ISLAND	1
HAVIK	HOOPER ISLAND	1
HAVIK	MCKINLEY BAY	1
HOOPER ISLAND	70 6.00 134 13.0	1
ITIIYOK	PULLEN ISLAND	1
KAUBVIK	PELLY ISLAND	3
KAUBVIK	PULLEN ISLAND	3
MCKINLEY BAY	HAVIK	3
MINUK	HANSON	1
MINUK	ISSIGAK	1
MINUK	ITIIYOK	1
MINUK	KAUBVIK	1
MINUK	PITT ISLAND	1
MINUK	PULLEN ISLAND	1
TUKTOYAKTUK	70 10.0 134 32.0	4
TUKTOYAKTUK	70 3.00 133 58.0	4
TUKTOYAKTUK	70 4.00 133 48.0	2
TUKTOYAKTUK	70 6.00 134 13.0	1
TUKTOYAKTUK	AAGNERK	17
TUKTOYAKTUK	ADGO	12
TUKTOYAKTUK	ANGASAK	4
TUKTOYAKTUK	ARNAK	83

AIRCRAFT ACTIVITIES - JULY 22 - 31 (continued)

END POINT 1	END POINT 2	TRIPS
TUKTOYAKTUK	ATKINSON POINT	2
TUKTOYAKTUK	AMAILIGAK I-65	37
TUKTOYAKTUK	GARRY ISLAND	4
TUKTOYAKTUK	HANSON	2
TUKTOYAKTUK	HAVIK	37
TUKTOYAKTUK	HERSCHEL BASIN	2
TUKTOYAKTUK	HOOPER ISLAND	7
TUKTOYAKTUK	KAUBVIK	9
TUKTOYAKTUK	MINUK	14
TUKTOYAKTUK	NIPTERK	6
TUKTOYAKTUK	PELLE ISLAND	1
TUKTOYAKTUK	PITT ISLAND	1
TUKTOYAKTUK	PULLEN ISLAND	5
TOTAL NUMBER OF TRIPS		327

AIRCRAFT ACTIVITIES - AUGUST 1 - 10

END POINT 1	END POINT 2	TRIPS
70 10.0 134 32.0	TARSIUT	1
AAGNERK	70 10.0 134 32.0	1
AAGNERK	AMAILIGAK I-65	12
ADGO	PULLEN ISLAND	1
ARNAK	HANSON	4
ARNAK	INUVIK	1
ARNAK	ISSIGAK	2
ARNAK	KAUBVIK	2
BAR C	MINUK	1
AMAILIGAK I-65	69 55.0 133 21.0	2
AMAILIGAK I-65	70 0.00 133 24.0	1
AMAILIGAK I-65	70 10.0 134 32.0	3
AMAILIGAK I-65	HOOPER ISLAND	1
AMAILIGAK I-65	INUVIK	1
GARRY ISLAND	HOOPER ISLAND	1
HANSON	MINUK	1
ITIIYOK	KAUBVIK	1
KRINGALAK	TARSIUT	1
MCKINLEY BAY	HAVIK	3
MINUK	ADGO	5
MINUK	ARNAK	1
MINUK	ISSIGAK	1
MINUK	KAUBVIK	3
PULLEN ISLAND	PELLY ISLAND	1
TUKTOYAKTUK	69 55.0 133 21.0	2
TUKTOYAKTUK	70 0.00 133 24.0	3
TUKTOYAKTUK	70 10.0 134 32.0	1
TUKTOYAKTUK	AAGNERK	19
TUKTOYAKTUK	ADGO	10
TUKTOYAKTUK	ARNAK	46
TUKTOYAKTUK	AMAILIGAK I-65	37
TUKTOYAKTUK	GARRY ISLAND	1
TUKTOYAKTUK	HANSON	7
TUKTOYAKTUK	HAVIK	25
TUKTOYAKTUK	ISSIGAK	1
TUKTOYAKTUK	ITIIYOK	3
TUKTOYAKTUK	KAUBVIK	16
TUKTOYAKTUK	KAY POINT	2
TUKTOYAKTUK	KRINGALAK	5
TUKTOYAKTUK	MINUK	16
TUKTOYAKTUK	PELLY ISLAND	1
TUKTOYAKTUK	PULLEN ISLAND	4
TUKTOYAKTUK	TARSIUT	2
TOTAL NUMBER OF TRIPS		254

AIRCRAFT ACTIVITIES - AUGUST 11 - 21

END POINT 1	END POINT 2	TRIPS
ADGO	MINUK	1
ADGO	TAGLU	2
ARNAK	ANGASAK	2
ARNAK	AMAILIGAK I-65	1
ARNAK	KAUBVIK	6
ARNAK	PITT ISLAND	1
AMAILIGAK I-65	70 10.0 134 32.0	12
AMAILIGAK I-65	KRINGALAK	5
MCKINLEY BAY	ATKINSON POINT	4
MCKINLEY BAY	HAVIK	10
MINUK	KAUBVIK	1
TARSIUT	KRINGALAK	1
TUKTOYAKTUK	70 10.0 134 32.0	14
TUKTOYAKTUK	ADGO	5
TUKTOYAKTUK	ANGASAK	2
TUKTOYAKTUK	ARNAK	76
TUKTOYAKTUK	ATKINSON POINT	6
TUKTOYAKTUK	AMAILIGAK I-65	42
TUKTOYAKTUK	GARRY ISLAND	4
TUKTOYAKTUK	HANSON	2
TUKTOYAKTUK	HAVIK	22
TUKTOYAKTUK	KAUBVIK	7
TUKTOYAKTUK	KRINGALAK	14
TUKTOYAKTUK	PITT ISLAND	5
TUKTOYAKTUK	PULLEN ISLAND	2
TUKTOYAKTUK	TAGLU	4
TUKTOYAKTUK	TARSIUT	1
TOTAL NUMBER OF TRIPS		252

AIRCRAFT ACTIVITIES - AUGUST 22 - 31

END POINT 1	END POINT 2	TRIPS
70 10.0 134 32.0	KRINGALAK	1
AMAILIGAK F-24	70 10.0 134 32.0	1
AMAILIGAK F-24	AMAILIGAK I-65	8
AMAILIGAK F-24	KRINGALAK	2
ARNAK	ISSIGAK	1
ARNAK	KAUBVIK	11
ARNAK	MINUK	1
ARNAK	NIPTERK	1
ARNAK	PULLEN ISLAND	3
ATKINSON POINT	AMAILIGAK F-24	1
AMAILIGAK I-65	70 10.0 134 32.0	10
HENDRICKSON	TUKTOYAKTUK	3
HOOPER ISLAND	HENDRICKSON	1
HOOPER ISLAND	STOKES POINT	4
KAUBVIK	GARRY ISLAND	2
KAUBVIK	ISSIGAK	2
KAUBVIK	PULLEN ISLAND	4
KRINGALAK	AMAILIGAK I-65	7
KRINGALAK	STOKES POINT	1
MCKINLEY BAY	HAVIK	3
MINUK	KAUBVIK	2
NIPTERK	KAUBVIK	1
PITT ISLAND	PELLY ISLAND	2
PULLEN ISLAND	PELLY ISLAND	2
TUKTOYAKTUK	70 10.0 134 32.0	4
TUKTOYAKTUK	AMAILIGAK F-24	15
TUKTOYAKTUK	ARNAK	43
TUKTOYAKTUK	ATKINSON POINT	2
TUKTOYAKTUK	BAILLIE ISLAND	1
TUKTOYAKTUK	AMAILIGAK I-65	44
TUKTOYAKTUK	HAVIK	7
TUKTOYAKTUK	HOOPER ISLAND	5
TUKTOYAKTUK	KAUBVIK	24
TUKTOYAKTUK	KRINGALAK	23
TUKTOYAKTUK	MINUK	1
TUKTOYAKTUK	PAULINE COVE	1
TUKTOYAKTUK	PITT ISLAND	2
TUKTOYAKTUK	PULLEN ISLAND	1
TUKTOYAKTUK	STOKES POINT	1
TUKTOYAKTUK	TUK BUOY	2
TOTAL NUMBER OF TRIPS		251

AIRCRAFT ACTIVITIES - SEPTEMBER 1 - 10

END POINT 1	END POINT 2	TRIPS
ADGO	ARNAK	1
ADGO	KAUBVIK	1
ADGO	MINUK	1
ADGO	TAGLU	1
AMAILIGAK F-24	70 10.0 134 32.0	1
ARNAK	KAUBVIK	1
AMAILIGAK I-65	69 56.0 133 19.0	3
AMAILIGAK I-65	70 10.0 134 32.0	9
AMAILIGAK I-65	AMAILIGAK F-24	4
AMAILIGAK I-65	TUK BUOY	7
HANSON	PULLEN ISLAND	1
KAUBVIK	ADGO	1
KAUBVIK	BAR C	1
KAUBVIK	GARRY ISLAND	2
KAUBVIK	ISSIGAK	1
MCKINLEY BAY	ATKINSON POINT	2
MINUK	KAUBVIK	1
PULLEN ISLAND	ITİYOK	1
TUK BUOY	70 10.0 134 32.0	2
TUK BUOY	AMAILIGAK F-24	1
TUKTOYAKTUK	69 56.0 133 19.0	3
TUKTOYAKTUK	70 10.0 134 32.0	12
TUKTOYAKTUK	ADGO	3
TUKTOYAKTUK	AMAILIGAK F-24	6
TUKTOYAKTUK	ARNAK	20
TUKTOYAKTUK	ATKINSON POINT	2
TUKTOYAKTUK	AMAILIGAK I-65	33
TUKTOYAKTUK	GARRY ISLAND	2
TUKTOYAKTUK	HANSON	5
TUKTOYAKTUK	HOOPER ISLAND	2
TUKTOYAKTUK	ISSIGAK	1
TUKTOYAKTUK	ITİYOK	1
TUKTOYAKTUK	KAUBVIK	45
TUKTOYAKTUK	STOKES POINT	1
TUKTOYAKTUK	TAGLU	1
TUKTOYAKTUK	TUK BUOY	8
TOTAL NUMBER OF TRIPS		199

AIRCRAFT ACTIVITIES - SEPTEMBER 11 - 20

END POINT 1	END POINT 2	TRIPS
69 56.0 133 19.0	AMAULIGAK F-24	1
70 10.0 134 32.0	AMAULIGAK I-65	8
70 10.0 134 32.0	HOOPER ISLAND	1
AMAULIGAK F-24	70 10.0 134 32.0	1
AMAULIGAK F-24	AMAULIGAK I-65	1
AMAULIGAK I-65	69 56.0 133 19.0	18
KAUBVIK	GARRY ISLAND	2
KAUBVIK	HANSON	1
KAUBVIK	MINUK	57
KAUBVIK	PULLEN ISLAND	18
PELLY ISLAND	PITT ISLAND	1
PULLEN ISLAND	PELLY ISLAND	1
STOKES POINT	PAULINE COVE	1
TUKTOYAKTUK	69 56.0 133 19.0	33
TUKTOYAKTUK	70 10.0 134 32.0	6
TUKTOYAKTUK	AMAULIGAK F-24	5
TUKTOYAKTUK	AMAULIGAK I-65	38
TUKTOYAKTUK	GARRY ISLAND	2
TUKTOYAKTUK	HANSON	5
TUKTOYAKTUK	HOOPER ISLAND	5
TUKTOYAKTUK	KAUBVIK	22
TUKTOYAKTUK	MINUK	14
TUKTOYAKTUK	PAULINE COVE	1
TUKTOYAKTUK	PITT ISLAND	1
TUKTOYAKTUK	PULLEN ISLAND	3
TOTAL NUMBER OF TRIPS		247

AIRCRAFT ACTIVITIES - SEPTEMBER 21 - 30

END POINT 1	END POINT 2	TRIPS
70 41.0 127 53.0	70 2.00 133 18.0	1
AMAULIGAK I-65	70 2.00 133 18.0	16
AMAULIGAK I-65	ATKINSON POINT	1
HOOPER ISLAND	GARRY ISLAND	1
KAUBVIK	MINUK	2
KAUBVIK	PULLEN ISLAND	2
KAY POINT	GARRY ISLAND	1
PELLY ISLAND	PITT ISLAND	1
PULLEN ISLAND	70 2.00 133 18.0	1
PULLEN ISLAND	GARRY ISLAND	1
PULLEN ISLAND	PELLY ISLAND	1
TUKTOYAKTUK	70 2.00 133 18.0	28
TUKTOYAKTUK	70 41.0 127 53.0	3
TUKTOYAKTUK	AMAULIGAK I-65	29
TUKTOYAKTUK	GARRY ISLAND	3
TUKTOYAKTUK	HOOPER ISLAND	1
TUKTOYAKTUK	KAUBVIK	36
TUKTOYAKTUK	KAY POINT	1
TUKTOYAKTUK	MINUK	2
TUKTOYAKTUK	PITT ISLAND	1
TUKTOYAKTUK	PULLEN ISLAND	5
TUKTOYAKTUK	STOKES POINT	8
TOTAL NUMBER OF TRIPS		145

Appendix A-4 Marine Research Activities (1986)

Note: There were no marine research activities for the 1986 reporting periods of June, July 1-10, November and December.

MARINE RESEARCH ACTIVITIES - JULY

END POINT 1				END POINT 2				TRIPS
68	44.0	135	30.0	70	30.0	135	30.0	2
68	46.0	135	40.0	68	53.0	136	20.0	1
68	49.0	135	50.0	68	54.0	136	30.0	2
68	52.0	136	10.0	68	52.0	136	50.0	2
68	52.0	136	50.0	70	30.0	136	50.0	2
68	53.0	136	20.0	70	30.0	136	20.0	1
68	54.0	136	30.0	70	30.0	136	30.0	1
68	54.0	136	30.0	70	30.0	136	30.0	1
68	56.0	137	0.00	69	2.00	137	40.0	1
68	56.0	137	10.0	69	4.00	137	50.0	2
69	1.00	137	30.0	69	9.00	138	10.0	2
69	2.00	137	40.0	70	30.0	137	40.0	1
69	20.0	133	50.0	70	30.0	133	50.0	2
69	23.0	133	40.0	69	34.0	133	40.0	6
69	24.0	133	10.0	69	20.0	133	50.0	2
69	27.0	133	0.00	69	23.0	133	40.0	2
69	28.0	135	0.00	70	30.0	135	0.00	1
69	28.0	135	10.0	70	30.0	135	10.0	2
69	29.0	134	50.0	68	44.0	135	30.0	2
69	32.0	134	10.0	70	30.0	134	10.0	2
69	32.0	134	30.0	69	28.0	135	10.0	2
69	34.0	133	30.0	69	32.0	134	10.0	2
69	34.0	133	40.0	69	34.0	133	44.0	2
69	34.0	133	44.0	69	20.0	133	44.0	4
69	39.0	132	50.0	70	30.0	132	50.0	2
69	4.00	137	50.0	70	30.0	137	50.0	2
69	42.0	134	20.0	69	28.0	135	0.00	1
69	44.0	132	20.0	70	30.0	132	20.0	2
69	45.0	132	30.0	70	30.0	132	30.0	2
69	9.00	138	10.0	70	30.0	138	10.0	2
70	30.0	132	20.0	70	30.0	133	0.00	2
70	30.0	132	30.0	70	30.0	133	10.0	2
70	30.0	132	50.0	70	30.0	133	30.0	2
70	30.0	133	0.00	69	27.0	133	0.00	2
70	30.0	133	10.0	69	24.0	133	10.0	2
70	30.0	133	30.0	69	34.0	133	30.0	2
70	30.0	133	40.0	70	30.0	134	20.0	1
70	30.0	133	50.0	70	30.0	134	30.0	2
70	30.0	134	10.0	70	30.0	134	50.0	2
70	30.0	134	20.0	69	42.0	134	20.0	1
70	30.0	134	30.0	69	32.0	134	30.0	2
70	30.0	134	50.0	69	29.0	134	50.0	2
70	30.0	135	0.00	70	30.0	135	40.0	1
70	30.0	135	10.0	70	30.0	135	50.0	2

MARINE RESEARCH ACTIVITIES - JULY (continued)

END POINT 1				END POINT 2				TRIPS
70	30.0	135	30.0	70	30.0	136	10.0	2
70	30.0	135	40.0	68	46.0	135	40.0	1
70	30.0	135	50.0	68	49.0	135	50.0	2
70	30.0	136	10.0	68	52.0	136	10.0	2
70	30.0	136	20.0	70	30.0	137	0.00	1
70	30.0	136	30.0	70	30.0	137	10.0	2
70	30.0	136	50.0	70	30.0	137	30.0	2
70	30.0	137	0.00	68	56.0	137	0.00	1
70	30.0	137	10.0	68	56.0	137	10.0	2
70	30.0	137	30.0	69	1.00	137	30.0	2
70	30.0	137	40.0	70	30.0	138	20.0	1
70	30.0	137	50.0	70	30.0	138	30.0	2
70	30.0	138	10.0	70	30.0	138	50.0	2
70	30.0	138	20.0	69	16.0	138	20.0	1
70	30.0	138	30.0	69	15.0	138	30.0	2
70	30.0	138	50.0	69	22.0	138	50.0	2
TOTAL NUMBER OF TRIPS								112

MARINE RESEARCH ACTIVITIES - AUGUST

END POINT 1	END POINT 2	TRIPS
68 56.0 136 36.0	69 1.00 137 30.0	1
68 56.0 136 36.0	69 9.00 138 6.00	1
69 1.00 137 30.0	69 18.0 138 22.0	1
69 17.0 136 31.0	69 29.0 136 0.00	1
69 18.0 138 22.0	69 34.0 139 28.0	1
69 19.0 138 37.0	INUVIK	1
69 2.00 137 3.00	70 37.0 137 3.00	1
69 2.00 137 35.0	69 2.00 137 3.00	1
69 29.0 136 0.00	70 47.0 136 0.00	1
69 34.0 137 35.0	69 2.00 137 35.0	1
69 34.0 139 28.0	69 36.0 140 12.0	1
69 35.0 139 40.0	69 38.0 139 8.00	1
69 36.0 140 12.0	70 25.0 140 12.0	1
69 38.0 133 23.0	INUVIK	1
69 38.0 139 8.00	70 22.0 139 8.00	1
69 40.0 132 51.0	70 45.0 132 51.0	1
69 40.0 132 52.0	71 22.0 132 52.0	1
69 40.0 133 54.0	70 50.0 133 54.0	1
69 42.0 134 57.0	70 35.0 134 57.0	1
69 42.0 138 6.00	69 34.0 137 35.0	1
69 44.0 134 24.0	69 40.0 133 54.0	1
69 49.0 132 20.0	69 52.0 131 48.0	1
69 52.0 131 48.0	71 7.00 131 48.0	1
69 58.0 131 27.0	69 40.0 132 52.0	1
69 9.00 138 6.00	69 42.0 138 6.00	1
70 0.00 131 17.0	70 10.0 130 46.0	1
70 10.0 130 15.0	70 17.0 129 42.0	1
70 10.0 130 46.0	71 0.00 130 46.0	1
70 17.0 129 42.0	71 5.00 129 42.0	1
70 17.0 138 37.0	69 19.0 138 37.0	1
70 22.0 139 8.00	70 17.0 138 37.0	1
70 25.0 140 12.0	70 26.0 139 40.0	1
70 26.0 139 40.0	69 35.0 139 40.0	1
70 35.0 134 24.0	69 44.0 134 24.0	1
70 35.0 134 57.0	70 35.0 134 24.0	1
70 37.0 137 3.00	70 40.0 136 31.0	1
70 40.0 136 31.0	69 17.0 136 31.0	1
70 45.0 132 20.0	69 49.0 132 20.0	1
70 45.0 132 51.0	70 45.0 132 20.0	1
70 47.0 136 0.00	70 53.0 135 29.0	1
70 50.0 133 23.0	69 38.0 133 23.0	1
70 50.0 133 54.0	70 50.0 133 23.0	1
70 53.0 131 27.0	69 58.0 131 27.0	1
70 53.0 135 29.0	69 40.0 135 29.0	1
70 59.0 130 0.00	70 53.0 131 27.0	1
70 8.00 130 0.00	70 59.0 130 0.00	1
71 0.00 130 15.0	70 10.0 130 15.0	1

MARINE RESEARCH ACTIVITIES - AUGUST (continued)

END POINT 1		END POINT 2		TRIPS
71 0.00	130 46.0	71 0.00	130 15.0	1
71 14.0	133 58.0	69 40.0	133 58.0	1
71 22.0	132 52.0	71 14.0	133 58.0	1
71 5.00	129 10.0	70 3.00	129 10.0	1
71 5.00	129 42.0	71 5.00	129 10.0	1
71 7.00	131 48.0	71 8.00	131 17.0	1
71 8.00	131 17.0	70 0.00	131 17.0	1
INUVIK		68 56.0	136 36.0	2
INUVIK		69 40.0	132 51.0	1
INUVIK		69 42.0	134 57.0	1
TOTAL NUMBER OF TRIPS				58

MARINE MAMMALS RESEARCH ACTIVITIES - SEPTEMBER

END POINT 1	END POINT 2	TRIPS
68 56.0 136 36.0	69 1.00 137 30.0	1
69 1.00 137 30.0	69 18.0 138 22.0	1
69 10.0 137 20.0	70 0.00 137 20.0	1
69 15.0 136 55.0	70 0.00 136 55.0	1
69 15.0 137 5.00	69 15.0 136 55.0	1
69 17.0 136 31.0	70 20.0 136 31.0	1
69 18.0 138 22.0	69 34.0 139 28.0	1
69 19.0 138 37.0	70 20.0 138 37.0	1
69 2.00 137 3.00	INUVIK	1
69 2.00 137 35.0	70 20.0 137 35.0	1
69 20.0 136 35.0	INUVIK	1
69 29.0 136 0.00	INUVIK	1
69 34.0 139 28.0	69 37.0 140 43.0	1
69 35.0 139 40.0	70 20.0 139 40.0	1
69 36.0 140 12.0	69 35.0 139 40.0	1
69 37.0 140 43.0	70 20.0 140 43.0	1
69 38.0 133 23.0	71 14.0 133 23.0	1
69 38.0 139 8.00	69 19.0 138 37.0	1
69 40.0 132 51.0	69 49.0 132 20.0	1
69 40.0 133 54.0	69 38.0 133 23.0	1
69 40.0 135 29.0	70 54.0 135 29.0	1
69 42.0 134 57.0	69 44.0 134 24.0	1
69 44.0 134 24.0	71 9.00 134 24.0	1
69 49.0 132 20.0	71 6.00 132 20.0	1
69 51.0 128 40.0	71 27.0 128 40.0	1
69 8.00 138 6.00	69 2.00 137 35.0	1
70 0.00 131 17.0	71 30.0 131 17.0	1
70 0.00 136 35.0	69 20.0 136 35.0	1
70 0.00 136 55.0	70 0.00 136 35.0	1
70 0.00 137 20.0	70 0.00 137 5.00	1
70 0.00 137 5.00	69 15.0 137 5.00	1
70 10.0 130 15.0	71 42.0 130 15.0	1
70 10.0 132 50.0	70 30.0 132 50.0	1
70 11.0 130 46.0	70 10.0 130 15.0	1
70 17.0 129 42.0	70 3.00 129 10.0	1
70 17.0 129 42.0	71 5.00 129 42.0	1
70 20.0 136 0.00	69 29.0 136 0.00	1
70 20.0 136 31.0	70 20.0 136 0.00	1
70 20.0 137 3.00	69 2.00 137 3.00	1
70 20.0 137 35.0	70 20.0 137 3.00	1
70 20.0 138 37.0	70 20.0 138 6.00	1
70 20.0 138 6.00	69 8.00 138 6.00	1
70 20.0 139 40.0	70 20.0 139 8.00	1
70 20.0 139 8.00	69 38.0 139 8.00	1
70 20.0 140 12.0	69 36.0 140 12.0	1
70 20.0 140 43.0	70 20.0 140 12.0	1
70 3.00 129 10.0	71 42.0 129 10.0	1

MARINE RESEARCH ACTIVITIES - SEPTEMBER (continued)

END POINT 1	END POINT 2	TRIPS
70 30.0 132 50.0	70 40.0 131 55.0	1
70 36.0 128 9.00	NICHOLSON	1
70 40.0 129 25.0	INUVIK	1
70 40.0 129 50.0	71 10.0 129 50.0	1
70 40.0 130 15.0	70 40.0 129 50.0	1
70 40.0 130 40.0	71 10.0 130 40.0	1
70 40.0 131 5.00	70 40.0 130 40.0	1
70 40.0 131 55.0	71 10.0 131 55.0	1
70 54.0 135 29.0	71 3.00 134 57.0	1
71 10.0 129 25.0	70 40.0 129 25.0	1
71 10.0 129 50.0	71 10.0 129 25.0	1
71 10.0 130 15.0	70 40.0 130 15.0	1
71 10.0 130 40.0	71 10.0 130 15.0	1
71 10.0 131 48.0	69 52.0 131 48.0	1
71 10.0 131 5.00	70 40.0 131 5.00	1
71 10.0 131 55.0	71 10.0 131 5.00	1
71 10.0 133 54.0	69 40.0 133 54.0	1
71 14.0 133 23.0	71 9.00 132 51.0	1
71 27.0 128 40.0	71 27.0 128 9.00	1
71 27.0 128 9.00	70 36.0 128 9.00	1
71 3.00 134 57.0	69 42.0 134 57.0	1
71 30.0 131 17.0	71 33.0 130 46.0	1
71 33.0 130 46.0	70 11.0 130 46.0	1
71 36.0 127 34.0	71 6.00 129 34.0	1
71 36.0 128 40.0	69 59.0 128 40.0	1
71 42.0 129 10.0	71 36.0 128 40.0	1
71 42.0 129 42.0	70 17.0 129 42.0	1
71 42.0 130 15.0	71 42.0 129 42.0	1
71 5.00 129 42.0	71 36.0 127 34.0	1
71 6.00 129 34.0	INUVIK	1
71 6.00 132 20.0	71 10.0 131 48.0	1
71 9.00 132 51.0	69 40.0 132 51.0	1
71 9.00 134 24.0	71 10.0 133 54.0	1
INUVIK	68 56.0 136 36.0	1
INUVIK	69 10.0 137 20.0	1
INUVIK	69 17.0 136 31.0	1
INUVIK	69 40.0 135 29.0	1
INUVIK	69 59.0 128 40.0	1
INUVIK	70 0.00 131 17.0	1
INUVIK	70 10.0 132 50.0	1
NICHOLSON	70 17.0 129 42.0	1

TOTAL NUMBER OF TRIPS

88

MARINE RESEARCH ACTIVITIES - OCTOBER

END POINT 1		END POINT 2	TRIPS
68 59.0	137 26.0	INUVIK	1
69 0.00	137 26.0	69 9.00 138 8.00	1
69 17.0	138 33.0	69 35.0 139 17.0	1
69 18.0	138 22.0	69 17.0 138 33.0	1
69 18.0	138 22.0	69 9.00 138 8.00	1
69 35.0	138 48.0	69 18.0 138 22.0	1
69 35.0	139 17.0	69 39.0 139 6.00	1
69 39.0	139 6.00	69 35.0 138 48.0	1
69 9.00	138 8.00	68 59.0 137 26.0	1
69 9.00	138 8.00	69 18.0 138 22.0	1
INUVIK		69 0.00 137 26.0	1

TOTAL NUMBER OF TRIPS	11
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MARINE RESEARCH ACTIVITIES - JULY 11 - 21

END POINT 1				END POINT 2				TRIPS
68	44.0	135	30.0	70	30.0	135	30.0	1
68	49.0	135	50.0	68	54.0	136	30.0	1
68	52.0	136	10.0	68	52.0	136	50.0	1
68	52.0	136	50.0	70	30.0	136	50.0	1
68	54.0	136	30.0	70	30.0	136	30.0	1
68	56.0	137	10.0	69	4.00	137	50.0	1
69	1.00	137	30.0	69	9.00	138	10.0	1
69	20.0	133	50.0	70	30.0	133	50.0	1
69	23.0	133	40.0	69	34.0	133	40.0	2
69	23.0	133	40.0	70	30.0	133	40.0	1
69	24.0	133	10.0	69	20.0	133	50.0	1
69	27.0	133	0.00	69	23.0	133	40.0	1
69	28.0	135	10.0	70	30.0	135	10.0	1
69	29.0	134	50.0	68	44.0	135	30.0	1
69	32.0	134	10.0	70	30.0	134	10.0	1
69	32.0	134	30.0	69	28.0	135	10.0	1
69	34.0	133	30.0	69	32.0	134	10.0	1
69	34.0	133	40.0	69	34.0	133	44.0	2
69	34.0	133	44.0	69	20.0	133	44.0	2
69	39.0	132	50.0	70	30.0	132	50.0	1
69	4.00	137	50.0	70	30.0	137	50.0	1
69	44.0	132	20.0	70	30.0	132	20.0	1
69	45.0	132	30.0	70	30.0	132	30.0	1
69	9.00	138	10.0	70	30.0	138	10.0	1
70	30.0	132	20.0	70	30.0	133	0.00	1
70	30.0	132	30.0	70	30.0	133	10.0	1
70	30.0	132	50.0	70	30.0	133	30.0	1
70	30.0	133	0.00	69	27.0	133	0.00	1
70	30.0	133	10.0	69	24.0	133	10.0	1
70	30.0	133	30.0	69	34.0	133	30.0	1
70	30.0	133	50.0	70	30.0	134	30.0	1
70	30.0	134	10.0	70	30.0	134	50.0	1
70	30.0	134	30.0	69	32.0	134	30.0	1
70	30.0	134	50.0	69	29.0	134	50.0	1
70	30.0	135	10.0	70	30.0	135	50.0	1
70	30.0	135	30.0	70	30.0	136	10.0	1
70	30.0	135	50.0	68	49.0	135	50.0	1
70	30.0	136	10.0	68	52.0	136	10.0	1
70	30.0	136	30.0	70	30.0	137	10.0	1
70	30.0	136	50.0	70	30.0	137	30.0	1
70	30.0	137	10.0	68	56.0	137	10.0	1
70	30.0	137	30.0	69	1.00	137	30.0	1
70	30.0	137	50.0	70	30.0	138	30.0	1
70	30.0	138	10.0	70	30.0	138	50.0	1
70	30.0	138	30.0	69	15.0	138	30.0	1

TOTAL NUMBER OF TRIPS

49

MARINE RESEARCH ACTIVITIES - JULY 22 - 31

END POINT 1		END POINT 2		TRIPS
68 44.0	135 30.0	70 30.0	135 30.0	1
68 46.0	135 40.0	68 53.0	136 20.0	1
68 49.0	135 50.0	68 54.0	136 30.0	1
68 52.0	136 10.0	68 52.0	136 50.0	1
68 52.0	136 50.0	70 30.0	136 50.0	1
68 53.0	136 20.0	70 30.0	136 20.0	1
68 54.0	136 30.0	70 30.0	136 30.0	1
68 56.0	137 0.00	69 2.00	137 40.0	1
68 56.0	137 10.0	69 4.00	137 50.0	1
69 1.00	137 30.0	69 9.00	138 10.0	1
69 2.00	137 40.0	70 30.0	137 40.0	1
69 20.0	133 50.0	70 30.0	133 50.0	1
69 23.0	133 40.0	69 34.0	133 40.0	2
69 23.0	133 40.0	70 30.0	133 40.0	1
69 24.0	133 10.0	69 20.0	133 50.0	1
69 27.0	133 0.00	69 23.0	133 40.0	1
69 28.0	135 0.00	70 30.0	135 0.00	1
69 28.0	135 10.0	70 30.0	135 10.0	1
69 29.0	134 50.0	68 44.0	135 30.0	1
69 32.0	134 10.0	70 30.0	134 10.0	1
69 32.0	134 30.0	69 28.0	135 10.0	1
69 34.0	133 30.0	69 32.0	134 10.0	1
69 34.0	133 40.0	69 34.0	133 44.0	2
69 34.0	133 44.0	69 20.0	133 44.0	2
69 39.0	132 50.0	70 30.0	132 50.0	1
69 4.00	137 50.0	70 30.0	137 50.0	1
69 42.0	134 20.0	69 28.0	135 0.00	1
69 44.0	132 20.0	70 30.0	132 20.0	1
69 45.0	132 30.0	70 30.0	132 30.0	1
69 9.00	138 10.0	70 30.0	138 10.0	1
70 30.0	132 20.0	70 30.0	133 0.00	1
70 30.0	132 30.0	70 30.0	133 10.0	1
70 30.0	132 50.0	70 30.0	133 30.0	1
70 30.0	133 0.00	69 27.0	133 0.00	1
70 30.0	133 10.0	69 24.0	133 10.0	1
70 30.0	133 30.0	69 34.0	133 30.0	1
70 30.0	133 40.0	70 30.0	134 20.0	1
70 30.0	133 50.0	70 30.0	134 30.0	1
70 30.0	134 10.0	70 30.0	134 50.0	1
70 30.0	134 20.0	69 42.0	134 20.0	1
70 30.0	134 30.0	69 32.0	134 30.0	1
70 30.0	134 50.0	69 29.0	134 50.0	1
70 30.0	135 0.00	70 30.0	135 40.0	1
70 30.0	135 10.0	70 30.0	135 50.0	1
70 30.0	135 30.0	70 30.0	136 10.0	1
70 30.0	135 40.0	68 46.0	135 40.0	1
70 30.0	135 50.0	68 49.0	135 50.0	1

MARINE RESEARCH ACTIVITIES - JULY 22 - 31 (continued)

END POINT 1				END POINT 2				TRIPS
70	30.0	136	10.0	68	52.0	136	10.0	1
70	30.0	136	20.0	70	30.0	137	0.00	1
70	30.0	136	30.0	70	30.0	137	10.0	1
70	30.0	136	50.0	70	30.0	137	30.0	1
70	30.0	137	0.00	68	56.0	137	0.00	1
70	30.0	137	10.0	68	56.0	137	10.0	1
70	30.0	137	30.0	69	1.00	137	30.0	1
70	30.0	137	40.0	70	30.0	138	20.0	1
70	30.0	137	50.0	70	30.0	138	30.0	1
70	30.0	138	10.0	70	30.0	138	50.0	1
70	30.0	138	20.0	69	16.0	138	20.0	1
70	30.0	138	30.0	69	15.0	138	30.0	1
70	30.0	138	50.0	69	22.0	138	50.0	1

TOTAL NUMBER OF TRIPS

63

MARINE RESEARCH ACTIVITIES - AUGUST 1 - 10

END POINT 1	END POINT 2	TRIPS
TUKTOYAKTUK	70 5.00 133 48.0	2
TOTAL NUMBER OF TRIPS		2

MARINE RESEARCH ACTIVITIES - AUGUST 11 - 21

END POINT 1	END POINT 2	TRIPS
69 40.0 132 52.0	71 22.0 132 52.0	1
69 45.0 134 37.0	TUKTOYAKTAK	1
69 51.0 134 48.0	69 45.0 134 37.0	1
69 58.0 131 27.0	69 40.0 132 52.0	1
70 53.0 131 27.0	69 58.0 131 27.0	1
70 59.0 130 0.00	70 53.0 131 27.0	1
70 8.00 130 0.00	70 59.0 130 0.00	1
71 14.0 133 58.0	69 40.0 133 58.0	1
71 22.0 132 52.0	71 14.0 133 58.0	1
TUKTOYAKTUK	69 51.0 134 48.0	1

TOTAL NUMBER OF TRIPS	10
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MARINE RESEARCH ACTIVITIES - AUGUST 22 - 31

END POINT 1		END POINT 2		TRIPS
68 56.0	136 36.0	69 1.00	137 30.0	1
68 56.0	136 36.0	69 9.00	138 6.00	1
69 1.00	137 30.0	69 18.0	138 22.0	1
69 17.0	136 31.0	69 29.0	136 0.00	1
69 18.0	138 22.0	69 34.0	139 28.0	1
69 19.0	138 37.0	INUVIK		1
69 2.00	137 3.00	70 37.0	137 3.00	1
69 2.00	137 35.0	69 2.00	137 3.00	1
69 29.0	136 0.00	70 47.0	136 0.00	1
69 34.0	137 35.0	69 2.00	137 35.0	1
69 34.0	139 28.0	69 36.0	140 12.0	1
69 35.0	139 40.0	69 38.0	139 8.00	1
69 36.0	140 12.0	70 25.0	140 12.0	1
69 38.0	133 23.0	INUVIK		1
69 38.0	139 8.00	70 22.0	139 8.00	1
69 40.0	132 51.0	70 45.0	132 51.0	1
69 40.0	133 54.0	70 50.0	133 54.0	1
69 42.0	133 13.0	69 53.0	132 56.0	1
69 42.0	134 57.0	70 35.0	134 57.0	1
69 42.0	138 6.00	69 34.0	137 35.0	1
69 44.0	134 24.0	69 40.0	133 54.0	1
69 49.0	132 20.0	69 52.0	131 48.0	1
69 52.0	131 48.0	71 7.00	131 48.0	1
69 52.0	132 50.0	69 42.0	133 13.0	1
69 53.0	132 56.0	69 54.0	133 57.0	1
69 54.0	133 57.0	70 33.0	134 0.00	1
69 59.0	131 26.0	70 2.00	131 26.0	1
69 59.0	131 26.0	70 9.00	131 28.0	1
69 59.0	131 36.0	69 59.0	131 26.0	1
69 9.00	138 6.00	69 42.0	138 6.00	1
70 0.00	131 17.0	70 10.0	130 46.0	1
70 0.00	131 29.0	70 4.00	131 29.0	1
70 10.0	130 15.0	70 17.0	129 42.0	1
70 10.0	130 46.0	71 0.00	130 46.0	1
70 13.0	131 23.0	70 50.0	131 29.0	1
70 14.0	132 52.0	69 52.0	132 50.0	1
70 17.0	129 42.0	71 5.00	129 42.0	1
70 17.0	138 37.0	69 19.0	138 37.0	1
70 2.00	131 26.0	70 0.00	131 29.0	1
70 22.0	139 8.00	70 17.0	138 37.0	1
70 25.0	133 0.00	70 14.0	132 52.0	1
70 25.0	140 12.0	70 26.0	139 40.0	1
70 26.0	139 40.0	69 35.0	139 40.0	1
70 34.0	132 51.0	70 25.0	133 0.00	1
70 35.0	134 24.0	69 44.0	134 24.0	1
70 35.0	134 57.0	70 35.0	134 24.0	1
70 37.0	137 3.00	70 40.0	136 31.0	1

MARINE RESEARCH ACTIVITIES - AUGUST 22 - 31 (continued)

END POINT 1				END POINT 2				TRIPS
70	38.0	132	58.0	70	34.0	132	51.0	1
70	4.00	131	29.0	69	59.0	131	26.0	1
70	40.0	136	31.0	69	17.0	136	31.0	1
70	43.0	132	55.0	70	38.0	132	58.0	1
70	45.0	132	20.0	69	49.0	132	20.0	1
70	45.0	132	51.0	70	45.0	132	20.0	1
70	47.0	136	0.00	70	53.0	135	29.0	1
70	50.0	131	29.0	70	43.0	132	55.0	1
70	50.0	133	23.0	69	38.0	133	23.0	1
70	50.0	133	54.0	70	50.0	133	23.0	1
70	53.0	135	29.0	69	40.0	135	29.0	1
70	9.00	131	28.0	70	13.0	131	23.0	1
71	0.00	130	15.0	70	10.0	130	15.0	1
71	0.00	130	46.0	71	0.00	130	15.0	1
71	5.00	129	10.0	70	3.00	129	10.0	1
71	5.00	129	42.0	71	5.00	129	10.0	1
71	7.00	131	48.0	71	8.00	131	17.0	1
71	8.00	131	17.0	70	0.00	131	17.0	1
INUVIK				68	56.0	136	36.0	1
INUVIK				68	56.0	136	36.0	1
INUVIK				69	40.0	132	51.0	1
INUVIK				69	42.0	134	57.0	1
TUKTOYAKTUK				69	59.0	131	36.0	1

TOTAL NUMBER OF TRIPS

70

MARINE RESEARCH ACTIVITIES - SEPTEMBER 1 - 10

END POINT 1		END POINT 2		TRIPS
68 56.0	136 36.0	69 1.00	137 30.0	1
69 1.00	137 30.0	69 18.0	138 22.0	1
69 10.0	137 20.0	70 0.00	137 20.0	1
69 15.0	136 55.0	70 0.00	136 55.0	1
69 15.0	137 5.00	69 15.0	136 55.0	1
69 16.0	137 20.0	69 41.0	136 19.0	1
69 17.0	136 31.0	70 20.0	136 31.0	1
69 18.0	138 22.0	69 34.0	139 28.0	1
69 19.0	138 20.0	69 26.0	138 50.0	1
69 19.0	138 37.0	70 20.0	138 37.0	1
69 2.00	137 3.00	INUVIK		1
69 2.00	137 35.0	70 20.0	137 35.0	1
69 20.0	136 35.0	INUVIK		1
69 23.0	138 13.0	69 19.0	138 20.0	1
69 25.0	132 59.0	69 33.0	133 8.00	1
69 26.0	138 50.0	70 6.00	137 49.0	1
69 29.0	136 0.00	INUVIK		1
69 32.0	136 46.0	69 5.00	137 44.0	1
69 32.0	137 57.0	69 23.0	138 13.0	1
69 33.0	133 8.00	70 22.0	130 46.0	1
69 34.0	139 28.0	69 37.0	140 43.0	1
69 35.0	136 43.0	69 44.0	136 2.00	1
69 35.0	138 47.0	69 16.0	137 20.0	1
69 35.0	139 40.0	70 20.0	139 40.0	1
69 36.0	136 26.0	69 35.0	136 43.0	1
69 36.0	136 59.0	69 46.0	137 23.0	1
69 36.0	140 12.0	69 35.0	139 40.0	1
69 37.0	140 43.0	70 20.0	140 43.0	1
69 38.0	133 23.0	71 14.0	133 23.0	1
69 38.0	139 8.00	69 19.0	138 37.0	1
69 40.0	132 51.0	69 49.0	132 20.0	1
69 40.0	133 54.0	69 38.0	133 23.0	1
69 40.0	135 29.0	70 54.0	135 29.0	1
69 40.0	136 43.0	69 36.0	136 26.0	1
69 41.0	136 19.0	69 40.0	136 43.0	1
69 42.0	134 57.0	69 44.0	134 24.0	1
69 44.0	134 24.0	71 9.00	134 24.0	1
69 44.0	136 2.00	TUKTOYAKTUK		1
69 46.0	137 23.0	69 32.0	137 57.0	1
69 48.0	138 25.0	69 35.0	138 47.0	1
69 49.0	132 20.0	71 6.00	132 20.0	1
69 5.00	137 44.0	69 9.00	137 59.0	1
69 50.0	134 50.0	69 54.0	133 57.0	1
69 51.0	128 40.0	71 27.0	128 40.0	1
69 53.0	133 51.0	69 32.0	136 46.0	1
69 54.0	133 57.0	69 25.0	132 59.0	1
69 54.0	133 58.0	69 53.0	133 51.0	1

MARINE RESEARCH ACTIVITIES - SEPTEMBER 1 - 10 (continued)

END POINT 1	END POINT 2	TRIPS
69 8.00 138 6.00	69 2.00 137 35.0	1
69 9.00 137 59.0	69 36.0 136 59.0	1
70 0.00 136 35.0	69 20.0 136 35.0	1
70 0.00 136 55.0	70 0.00 136 35.0	1
70 0.00 137 20.0	70 0.00 137 5.00	1
70 0.00 137 5.00	69 15.0 137 5.00	1
70 17.0 129 42.0	71 5.00 129 42.0	1
70 2.00 133 57.0	69 54.0 133 58.0	1
70 20.0 136 0.00	69 29.0 136 0.00	1
70 20.0 136 31.0	70 20.0 136 0.00	1
70 20.0 137 3.00	69 2.00 137 3.00	1
70 20.0 137 35.0	70 20.0 137 3.00	1
70 20.0 138 37.0	70 20.0 138 6.00	1
70 20.0 138 6.00	69 8.00 138 6.00	1
70 20.0 139 40.0	70 20.0 139 8.00	1
70 20.0 139 8.00	69 38.0 139 8.00	1
70 20.0 140 12.0	69 36.0 140 12.0	1
70 20.0 140 43.0	70 20.0 140 12.0	1
70 22.0 130 46.0	70 24.0 130 32.0	1
70 24.0 130 32.0	TUKTOYAKTUK	1
70 3.00 133 50.0	70 2.00 133 57.0	1
70 33.0 134 0.00	70 39.0 134 9.00	1
70 36.0 128 9.00	NICHOLSON	1
70 39.0 134 9.00	70 40.0 133 50.0	1
70 4.00 133 59.0	70 3.00 133 50.0	1
70 40.0 133 50.0	70 45.0 134 3.00	1
70 41.0 134 51.0	69 50.0 134 50.0	1
70 43.0 133 59.0	70 4.00 133 59.0	1
70 45.0 134 3.00	70 41.0 134 51.0	1
70 50.0 131 45.0	70 43.0 133 59.0	1
70 54.0 135 29.0	71 3.00 134 57.0	1
70 6.00 137 49.0	69 48.0 138 25.0	1
71 10.0 131 48.0	69 52.0 131 48.0	1
71 10.0 133 54.0	69 40.0 133 54.0	1
71 14.0 133 23.0	71 9.00 132 51.0	1
71 27.0 128 40.0	71 27.0 128 9.00	1
71 27.0 128 9.00	70 36.0 128 9.00	1
71 3.00 134 57.0	69 42.0 134 57.0	1
71 36.0 127 34.0	71 6.00 129 34.0	1
71 5.00 129 42.0	71 36.0 127 34.0	1
71 6.00 129 34.0	INUVIK	1
71 6.00 132 20.0	71 10.0 131 48.0	1
71 9.00 132 51.0	69 40.0 132 51.0	1
71 9.00 134 24.0	71 10.0 133 54.0	1
INUVIK	68 56.0 136 36.0	1
INUVIK	69 10.0 137 20.0	1
INUVIK	69 17.0 136 31.0	1

MARINE RESEARCH ACTIVITIES - SEPTEMBER 1 - 10 (continued)

END POINT 1	END POINT 2				TRIPS
INUVIK	69	40.0	135	29.0	1
NICHOLSON	70	17.0	129	42.0	1
TUKTOYAKTUK	70	50.0	131	45.0	1
TOTAL NUMBER OF TRIPS					97

MARINE RESEARCH ACTIVITIES - SEPTEMBER 11 - 20

END POINT 1		END POINT 2	TRIPS
70 0.00	131 17.0	71 30.0 131 17.0	1
70 10.0	130 15.0	71 42.0 130 15.0	1
70 11.0	130 46.0	70 10.0 130 15.0	1
70 17.0	129 42.0	70 3.00 129 10.0	1
70 3.00	129 10.0	71 42.0 129 10.0	1
71 30.0	131 17.0	71 33.0 130 46.0	1
71 33.0	130 46.0	70 11.0 130 46.0	1
71 36.0	128 40.0	69 59.0 128 40.0	1
71 42.0	129 10.0	71 36.0 128 40.0	1
71 42.0	129 42.0	70 17.0 129 42.0	1
71 42.0	130 15.0	71 42.0 129 42.0	1
INUVIK		69 59.0 128 40.0	1
INUVIK		70 0.00 131 17.0	1

TOTAL NUMBER OF TRIPS	13
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MARINE RESEARCH ACTIVITIES - SEPTEMBER 21 - 30

END POINT 1	END POINT 2	TRIPS
69 45.0 134 37.0	69 47.0 134 40.0	2
69 47.0 134 40.0	69 49.0 134 45.0	2
69 49.0 134 45.0	69 51.0 134 48.0	2
70 10.0 132 50.0	70 30.0 132 50.0	1
70 30.0 132 50.0	70 40.0 131 55.0	1
70 40.0 129 25.0	INUVIK	1
70 40.0 129 50.0	71 10.0 129 50.0	1
70 40.0 130 15.0	70 40.0 129 50.0	1
70 40.0 130 40.0	71 10.0 130 40.0	1
70 40.0 131 5.00	70 40.0 130 40.0	1
70 40.0 131 55.0	71 10.0 131 55.0	1
71 10.0 129 25.0	70 40.0 129 25.0	1
71 10.0 129 50.0	71 10.0 129 25.0	1
71 10.0 130 15.0	70 40.0 130 15.0	1
71 10.0 130 40.0	71 10.0 130 15.0	1
71 10.0 131 5.00	70 40.0 131 5.00	1
71 10.0 131 55.0	71 10.0 131 5.00	1
INUVIK	70 10.0 132 50.0	1
TUKTOYAKTUK	69 45.0 134 37.0	2
TOTAL NUMBER OF TRIPS		23