EPS DP 05-01

DEPARTMENT OF ENVIRONMENT ENVIRONMENTAL PROTECTION PACIFIC REGION YUKON DIVISION

BEAUFORT SEA SHORELINE DRIFT WASTE SURVEYS 1984, 1986, 1989, 1990

DATA REPORT NO. 95-01

Prepared by Environmental Protection Yukon District Office

December 1994

REF Beaufort Sea EPS shoreline drift DR waste surveys 1984, 95-01 1986, 1989, 1990

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ABSTRACT

As a result of human activity in the Beaufort Sea and the surrounding region, waste material is accumulating along the Beaufort shoreline. Between 1974 and 1990 eleven shoreline drift waste surveys were conducted by the Department of Environment, Environmental Protection Service (EPS) Yukon and North West Territories (NWT) divisions. This report presents the data from the unpublished surveys, and provides a summary of the work carried out to date.

<u>RÉSUMÉ</u>

La mer de Beaufort et la région environnante ont vu, à la suite d'activités humaines, une accumulation de déchets le long du littoral. Entre 1974 et 1990, onze études de déchets de dérive ont été conduites par Protection de L'Environnement d'Environnement Canada au Yukon et au Territoires du Nord-Ouest. Ce rapport présente les données non publiés de ces études et fournis un sommaire de l'ouvrage effectué jusqu'à présent.

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1.0 INTRODUCTION

In 1975 it was estimated that over six million tonnes of litter is discarded annually into the world's oceans, and that the majority is concentrated in the Northern Hemisphere (United States National Academy of Sciences, 1975). Between 1974 and 1990, the Government of Canada - Environmental Protection Service (EPS) conducted eleven surveys to determine to what extent the coast line of the Beaufort Sea has been affected by drifting waste.

Marine waste can affect wildlife through entanglement and ingestion (United States Environmental Protection Agency, 1989). Marine mammals, fish and birds become entangled in trawl web, gill nets and strapping (Merrel, 1984) It has been estimated that up to 50 000 northern fur seals become entangled in litter and die annually (Fowler, 1982).

Approximately 135 km, or 44%, of the Yukon coast line is contained within two parks, (Herschel Island Territorial Park, and Ivvavik National Park). It can be assumed that most Canadians would consider the Arctic coast as a yet pristine region of the country.

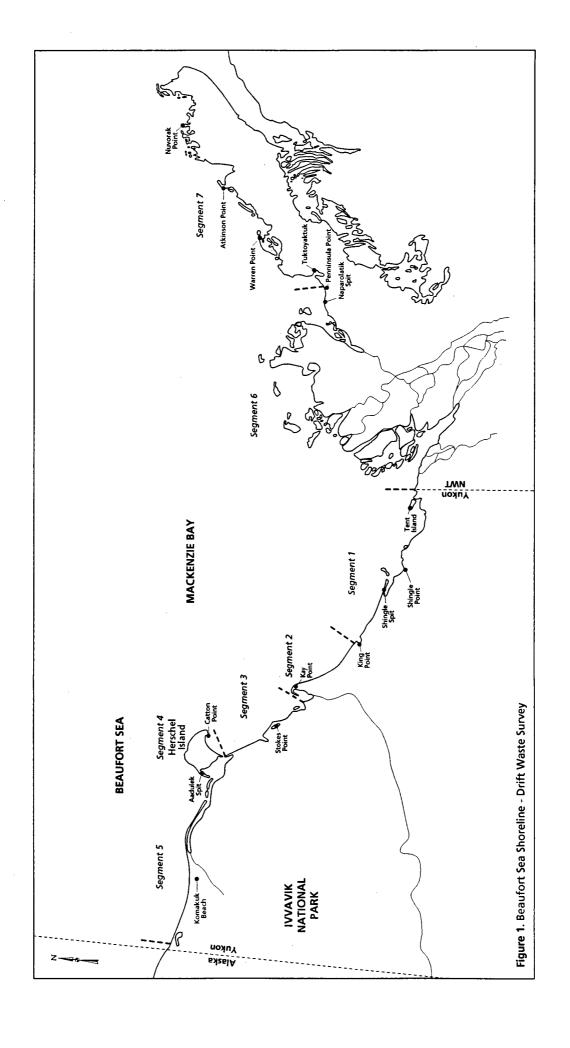
Most of the human activity in the region has been related to: 1) oil and gas exploration and development, 2) the military, 3) transportation / shipping, and 4) movement of local people along the coast.

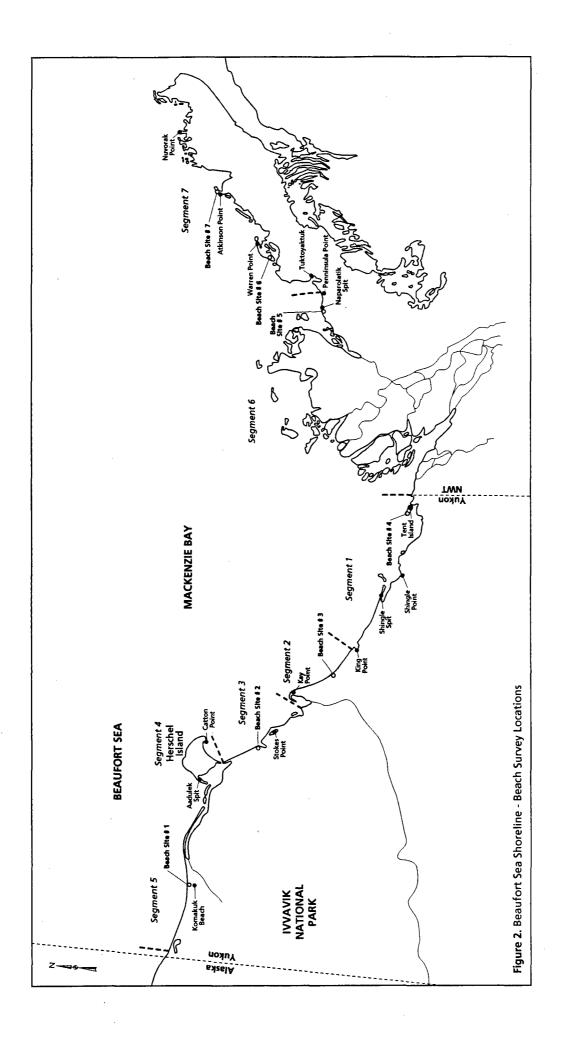
2.0 METHODS

The August 1984, August 1986, August 1989, and July 1990 surveys were conducted by EPS, Yukon division. The coast line from the Yukon/Alaska border to Nuvorak Point, NWT was divided into seven segments. The data is recorded and displayed by segment. See figure 1 for segment locations. All surveys were conducted from a Bell 206 Jet Ranger helicopter. The helicopter was flown at speeds of 100 to 160 km per hour. The helicopter was flown along the coastline approximately 10 meters off shore. The 1984 to 1990 surveys had two observers in addition to the pilot on board. The observers recorded their notes on hand held audio cassette recorders. The recorded items were later transcribed to a hard copy and entered into a computer data base.

Only materials which appeared to have been deposited on the shore as a result of drift were counted. During the helicopter surveys it is estimated that the observers were able to identify items 0.09 square meters (1 square foot) in size or larger.

In 1989 and 1990 seven detailed beach surveys, and cleanups were conducted. The seven sites were located between the Yukon /Alaska border and Nuvorak Point, NWT (see figure 2). Each site was 125 m in length and included all the area above the low water mark which may receive drift material. All individual pieces of drift material were counted. Large items were marked, and small items collected and removed from the sites. All beach surveys were conducted by Eamer and Coleman.





3.0 RESULTS AND DISCUSSION

A listing of all items observed during the August 1984, August 1986, August 1989, and July 1990 surveys can be found in Appendices I to VI. Listings of items observed in the July 1983, July/September 1984 and July/September 1985 NWT surveys can be found in Wainwright and Fenton, 1983; Shearer and Haggett and Bourge, 1984; and Shearer and Bourgue, 1987.

A summary of totals observed during the aerial surveys is contained in Table 1. Average densities of items per kilometre for the aerial surveys is contained in Table 2. Totals for the 1989 and 1990 ground surveys are found in Tables 3 and 4. Density of items per kilometre, based upon the ground surveys is shown in Table 7.

There was a large difference between the densities determined by aerial and ground surveys, for example in the 1989 surveys density per km for sites 1 and 6 were 4192 and 72 by ground and 4.0 and 0.5 by air. It is estimated that the minimum sized object visible during the helicopter surveys was 0.9 m^2 . The low aerial counts can mainly be attributed to the small size of most items present, and that many of the items are found partially buried or held in drift wood piles.

Of the seven segments, segment 1 had by far the highest density of items. This may be influenced by waste which is transported by the Mackenzie River, as its plume extends across much of segment 1. With the exclusion of segment 1, the range of item density per kilometre amongst the segments is reduced, 72 - 1480 for the 1989 ground survey.

The average density for all ground sites in 1989 is 1079 items per kilometre, (based upon 125 m counts). Beach surveys have been conducted by investigators in other areas of the world. Examples of density's from other surveys are: 279 items per km on the Isle of Skye, (Scott, 1972); 381 items per km on Ducie Atoll in the South Pacific (Benton, 1991); 256 items per km on Amchitka Island, Alaska (Merrell, 1984); and 993 items per km on a remote island in the South Atlantic (Ryan and Moloney, 1993). Although the type and size of items found in the study locations vary, on a number of items per kilometre basis all of these surveys resulted in values less than that found along the Beaufort coast.

Few of the items observed were of the type usually associated with the entanglement of wildlife, such as net fragments, six-pack rings, monofilament line, and metal or plastic strapping. We do not know to what extent pieces of foam may be ingested by marine wildlife or birds. It is not known if any observations have been made to suggest that foam pieces may be mistaken for food items. In the literature reviewed, the types of materials observed to be ingested were plastic bags, balloons, and small plastic pellets.

The ground surveys and cleanups show that a cleaned site may quickly return to the same level of pollution. One year after the 1989 clean up, all sites had accumulated at least 40% of the waste (site 2), and one site had almost twice the 1989 level (195% at site 5). This may be due to new material entering the sea, or site to site movement of material already present. During the 1989 and 1990 ground surveys it was noted that some beaches with a large amount of driftwood in 1989 had little in 1990. Much of the waste which moved onto the cleaned sites may have been pulled off of other sites by high water levels or the movement of ice.

A large portion of the waste items found were small bits of foam which may have originated from the oil and gas industry. Figure 3 shows one half of a dredge collar which may be broken down into many smaller pieces. Since the late 1980's the oil and gas industry in the Canadian Beaufort region has all but ceased. Increased environmental regulations, high operating expenses and the opening of new areas for exploration in Eastern Europe have been cited as reasons for the present stoppage of activity. It is felt that no new oil and gas development will occur for at least five years. As the decline of the industry coincided with the last EPS survey it is not known whether this has resulted in less waste present along the coast.

A representative form Herschel Island Territorial Park said that some waste materials on the island do present a negative aesthetic effect, primarily two large dredge collars located at Lopez Point and Avadlek Spit. The collars are stamped "Esso", (see Figure 3), but he did not know exactly where they came from. A large number of barrels on the island also have a negative aesthetic impact. In 1993 a Gulf Oil caisson broke and distributed foam pieces onto the island. Gulf Oil participated in a clean up of the foam and approximately 100 bags of the material was removed from the island. It was felt that the large number of oil drums on the island posed the greatest negative effect. (Andy Tardiff, personal communication)

A representative for Ivvavik National Park said that the waste along the park's coast falls into three categories: 1) waste from the military presence which started in the 1950's, 2) the oil and gas industry, and to a "significantly lesser degree" 3) subsistence use. Fuel drums, some of which still contain fuel or other liquids, pose the greatest environmental threat. He noted that the coast is generally the destination of park visitors and that "everybody says that they are surprised about the amount of garbage around and feel that it should be cleaned soon" (Tyson Pertschy, personal communication).

In 1994 staff at Ivvavik National Park began a cleanup of waste debris. Much of this effort was directed towards waste found in the park's interior, and focused on removal of derelict fuel drums. Funding for the cleanup came from the park's operations and maintenance budget. There are still however many barrels which require removal from the park, especially East of Stokes Point.

Apart from fuel drums containing fuel or other liquids, the types of waste material found in the surveys are chemically inert and do not pose an active environmental threat. Wildlife may be harmed by the ingestion of waste. Although there is no reports of this from the Beaufort area, it has been reported that 15 of 37 species of marine birds in Alaska had ingested plastic particles (Day, 1980).

	Segment Number								
Date	1	2	3	4	5	Sub total	6	7	Sub tota
July 1983			7				28*	168*	196
July 1984							126**	424**	550
Aug 1984	91	16	50	29	35	221			
Sept 1984							155**	199**	354
July 1985	l						50***	77***	127
Sept 1985	1						98***	115***	213
Aug 1986	80	34	38	26	38	216			
Aug 1989	324	104	147	37	341	953	489	159	648
July 1990	162	52	32	28	93	367	209	271	480
Mean	164	52	67	30	127		175	158	

TABLE 1 SUMMARY OF ITEMS OBSERVED, 1983 - 1990

* Wainwright and Fenton, 1983; ** Shearer, Hagget, and Bourque, 1984;

*** Shearer and Bourque, 1987

	Approximate	Average	Average
	distance	number of	density per
	(km)	waste items	km.
Segment	·	(1989-1990)	(1989-1990)
	81.3	243	3.0
	2 47	78	1.7
	3 41.8	89.5	2.1
	4 57	32.5	0.6
	5 78	217	2.8
	6 340	349	1.0
•	7 236	215	0.9

TABLE 2 AVERAGE DENSITY OF WASTE ITEMS (>0.9m2) PER KM, 1989-1990

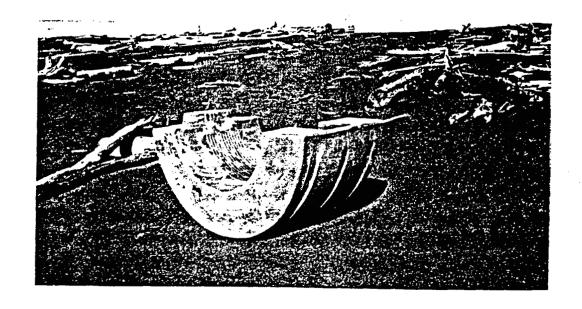


FIGURE 3 PORTION OF DERELICT DREDGE COLLAR ON HERSCHEL ISLAND

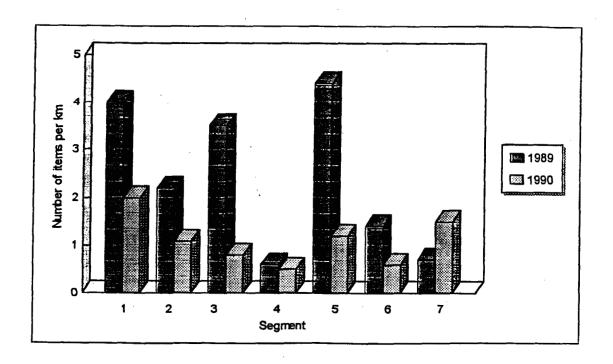


FIGURE 4 WASTE ITEM DENSITIES 1989, 1990 HELICOPTER SURVEYS

	1	tem		•					
		cups	foam	rope	hard plastic	poly tarps	poly bags	other	total
Site #	ŧ					-			
	1	30	469	5	3	1	4	12	524
	2	13	45	10	12	1	4	_	85
	3	17	137	1	12	1	-	-	168
	4	2	14	-	1	-	1	1	17
	5	5	40	4	4	- .	2		55
	6	1	3	-	1	2	-	2	9
	7	6	44	2	1	6	8	2	69
total		74	752	22	34	11	19	17	

TABLE 3 1989 BEACH SURVEY TOTALS (per 125 m)

	:	Item							
		cups	foam	rope	hard	poly	poly	other	total
					plastic	tarps	bags		
Site #	ŧ								
	1	100	289	2	1	-	-	8	400
	2	2	11	1	20	-	_	-	34
	3	5	30	1	-	1		-	55
	4								107
	5	22	70	_	1	-	4	10	13
•	6	-	8	1	2	-	-	2	72
	7	3	60	2	3	1	-	. 3	664
total		133	468	7	27	2	4	23	

TABLE 4 1990 BEACH SURVEY TOTALS (per 125 m)

:	Site #						
	1	2	3	4	5	6	7
Year			<u> </u>			•	
1989	4192	680	1480	136	. 440	72	552
1990	3200	272	440	n/a	856	104	563

TABLE 7 SHORELINE SURVEY WASTE DENSITIES PER KM (based on the number of items per 125 m)

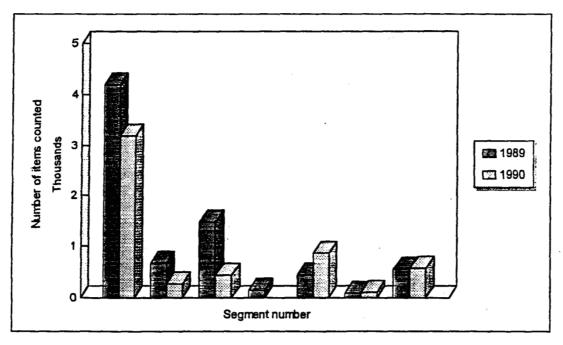


FIGURE 5 SHORELINE SURVEY WASTE DENSITIES PER KM (based on the number of items per 125 m)

4.0 RECOMMENDATIONS

The problem of waste build up on the Beaufort Sea coast has been recognized since at least 1975. The drift waste present does not present a threat of chemically contaminating the region. Negative effects from garbage on wildlife is well documented but it is not known to what extent it is affecting populations in the Beaufort Sea region. The type of materials usually associated with entanglement are not present in large numbers. The primary negative effect from the drift waste is it's effect on the regions aesthetic value or wilderness integrity. The small size of much of the drift waste, and it's association with drift wood would result in a very time consuming and costly clean up. Cleaned areas may quickly reaccumulate drift material.

Although the focus of this study was waste materials which had been transported as Ocean drift, the large number of fuel barrels above and below the water line was also noted. Many of these barrels are contained at abandoned fuel cache sites. Tyson Pertschy of Ivvavik National Park noted that some of the barrels still contain fuel and/or other liquids. Because of their size, barrels are highly visible in the region, and their location is easily identified from the air.

It is recommended that if resources are made available for a coastal cleanup program that the focus of the efforts should first be directed towards the removal of all derelict fuel barrels. Barrels containing liquids pose a threat of contaminating an area, as well as degrading the aesthetic quality of the region. The removal of all derelict barrels provides a tangible goal, whereas a cleanup directed towards drift waste would have to be an ongoing program, requiring a method for assuring future program funding.

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<u>ACKNOWLEDGEMENTS</u>

The Environmental Protection Service (EPS), Yukon Division wishes to thank G. Mackenzie-Grieve, A. Colodey, J. Polak, J. Eamer, and T. Coleman for conducting the 1984, 1986, 1989, and 1990 shoreline surveys; S. Herron for report preparation. Tyson Pertschy and Bill Smith of Parks Canada, and Andy Tardiff of Government of Yukon-Renewable Resources for information about Ivvavik, and Herschel Island Parks. EPS also wishes to thank the Polar Continental Shelf Project in Tuktoyaktuk, NWT for providing the helicopter and offering logistical support.

APPENDIX I

YUKON COAST 1984 TENT ISLAND TO ALASKA BORDER

Tent Island to Alaska Border August 4, 5

Segme Numbe		Description of Observation
1		Tent Island
1		
1		white plastic bottle (1 L)
1		<pre>small red plastic piece (< .3 m)</pre>
1	_	orange
1		brown foam (.3 m)
1	_	orange foam (> 1 m)
1		blue (turquoise) plastic bottle
1		orange foam (< 1 m)
1		End of Tent Island
1		orange foam (< 1m)
. 1	_	Scotsman buoy (pink / blue)
1		brown foam
1	1	brown foam
1	1	brown foam
1	_	brown foam
1		brown foam
1	1	brown foam
1	1	Scotsman buoy (pink/blue)
1	1	brown foam
1	1	dredge flotation collar (red 1/2)
1	1	dredge flotation collar (red 1/2)
1	1	brown foam
1	1	foam cylinder (white)
1	1	red plastic bottle
1	1	brown foam
1	1	dredge flotation collar (red 1/2)
1	1	brown foam
1	1	brown foam
1	1	dredge flotation collar (red 1/2)
1	1	brown foam
1		end of Delta
1	1	red plastic bottle
1	1	brown foam
1		Shingle Point
1	1	red plastic bottle
1	1	red plastic bottle
1	1	red plastic bottle
1		Shingle Spit proceed along island side
		easterly to point then westerly along the
		ocean side.
1	1	brown foam
1	1	red plastic bottle (1 L)
1	1	brown foam
. 1	1	brown foam
1		West End of Spit
1	1	styrofoam piece
.1	1	white plastic bottle

Tent Island to Alaska Border August 4, 5

Sub total : 91

Segment Number	Number of Items	Description of Observation
1	1	brown foam
1	1	red plastic bottle
1	1	white plastic bottle
1	1	white foam
ī	<u> </u>	dredge flotation collar (red 1/2)
1	1	brown foam
1	1	brown foam
i	1	blue plastic bottle
1	ī	brown foam
1	1	white foam
ī	ī	red container
ī	1	brown foam
ī	1	red plastic bottle
1	1	dredge flotation collar (red 1/2)
1	1	yellow rope
1	ī	brown foam
ī	ī	brown foam
ī	1	dredge flotation collar (red 1/2)
ī	ī	fuel cache, approx 12 drums
1	1	brown foam
ī	1	blue bottle
ī	ī	white instrument box (.36 m per side)
ī	1	brown foam
ī	1	yellow rope
ī	1	blue pail lid
1	ī	brown foam
1	ī	blue bottle
1	1	white bottle
1	1	brown foam
1	1	blue rope
1	1	red plastic bottle
1	ī	red plastic bottle
1	1	white plastic bag
ī	1	brown foam
1	ī	white plastic sheet
1	ī	white foam
1	1	red plastic piece
1	1	dredge flotation collar (red 1/2)
1	ī	brown foam
1	ī	brown foam
1	ī	white foam
1	1	dredge flotation collar (red 1/2)
1	ī	yellow rope
1	1	red bottle
i	1	white foam
1	1	dredge flotation collar (red 1/2)
1	1	yellow rope
1	1	foam chunk
1	1	white plastic
<u>.</u>	•	King Point

Tent Island to Alaska Border August 4, 5

Segment Number	Number of Items	Description of Observation
		King Point
2	1	blue plastic strip
2	1	red plastic (< 15 cm.)
2	1	dredge flotation collar
2	ī	white plastic bottle
2	1	red and yellow survey marker(1m)
2	1	barge timber
2	1	brown foam (.5m x 1m) urethane type
2	1	brown foam (.3m x1.8m)
2	1	rope
2	1	small piece of red plastic (<6")
2	1	styrofoam sheet
2	2	yellow ropes (> 3m long each)
2	1	red plastic oil bottle (1 litre style)
2	1	white plastic bottle (cylinder)
2	1	lube tube for outboard motor (white)
4	1	Kay Point Marker
	•	•
Sub total :	16	
_	_	Kay Point Marker
3	1	blue plastic container lid (1 m diameter)
3	1	red flagging tape
3	1	brown foam (.6m x .3m)
3	1	brown foam (.6m x .3m)
3	1	white foam $(.6m \times .6m \times 1.2m)$
3	1	red plastic bottle
3	1	red plastic bottle
3	1	red scotsman buoy
3	1	green rope
3	1	blue plastic cap (<15cm diam)
3	1	dredge flotation collar (red)
3	1	red marker buoy (1.2m x .6m)
3	1	plastic bucket
3	1	red plastic (< 15cm)
3	1	red plastic
3	1	yellow foam (chunk - 0.3m)
3	1	brown foam
3		Stokes Point
3	1	red scotsman buoy
3	1	red plastic
3	1	white foam (< 0.3m)
3	1	red flagging
3	2	dredge collar(red 1/2 sections)
3.	1	brown foam chunk (0.3m)
3	1	white foam sheet (1 m sq.)
3	1	white plastic bucket
3	1	red plastic bottle
3	1	marker buoy

Tent Island to Alaska Border August 4, 5

Segment Number	Number of Items	Description of Observation
3 3 3 3	1 1 1	Roland Bay yellow rope white plastic bottle (1 1) green plastic bottle (1 1) white plastic bottle
3 3 3 3	1 1 1	<pre>brown foam cube (0.6m per side) sheet of polyethylene white plastic bottle gray instrument box (lm x lm x lm)</pre>
3 3 3	1 8 1	yellow foam chunk (0.6m per side) assorted 1 litre oil containers. yellow foam sheet (1.2m square) yellow poly rope (untwisted)
3 3 3	1 1 1	yellow poly rope chunk of yellow foam rope Stop opposite Herschel Island and fly to
Sub total :	50	Herschel to fly it counterclockwise starting from southeast corner of the island.
		SE Herschel Island
4	1	1/2 of dredge flotation collar
4	1	blue plastic bottle (< 1 litre)
4	1	white plastic container (< 1 litre)
4	1	brown foam (0.3m chunk)
4	1	tire
4	1	brown foam chunk
4	1	orange plastic sheet
4	1	red plastic net or marker buoy
4	1	white plastic bottle (4 litre)
4	1	brown foam ($small < .3 m$)
4	1	brown foam (large, 1 m)
4	1	1/2 red dredge flotation collar
4	1	brown foam (small)
4	1	yellow rope
4	1	small foam chunk
4 4	1 1	dredge flotation collar (red 1/2) dredge flotation collar (red 1/2)
4	1	yellow rope
4	1	dredge flotation collar (red 1/2)
4	-	Avadlek Spit
4	1	blue plastic bottle (> 1 L)
4	3	blue and red plastic pieces (< .3 m)
4	1	brown foam chunk (> 1.3 m)
4	1	white foam (> 1.3 m)
4	ī	yellow rope
4	1	blue plastic lid
4	1	pink plastic sheet

Tent Island to Alaska Border August 4, 5

Segment Number Number of Items	Description of Observation
4 1	yellow plastic sheet Stop at SE corner of Herschel Island, where began. (Osborne Point)
Sub total: 29	
5	Catton Pt.
5 1	yellow rope
5 1	red plastic bottle (1 L)
5 1	red plastic bottle (1 L)
5 1	blue plastic bottle (1 L)
5 1	red plastic bottle (1 L)
5 1 5 1 5 1 5 1	white plastic sheet (styrofoam)
5 1	blue plastic bottle
5 1	dredge flotation collar, complete.
5 1	clear plastic bag
5	Nunaluk Spit begins
5 1	rope
5 1 5 1	dredge flotation collar (red, 1/2)
5 1	dredge flotation collar (red, 1/2)
5 1 5 1	white foam sheet (1.3 m per side)
5 1	
5 1	yellow rope
5 1	yellow rope
5 1 5 1	white foam chunk (1.3 m per side)
5 1	black plastic sheet
5 1	white pail
5 1	blue plastic bag (< .6 m)
5 1	blue plastic bag (< .6 m)
5 1	orange float
5 1	buoy
5 1	red plastic bottle
5 1	dredge flotation collar (1/2)
5 1	yellow rope
. 5 1	yellow cylinder (larger than oil drum)
5 1	dredge flotation collar (red, 1/2)
5 1	red bottle
5 1	dredge flotation buoy - Scotsman ?
5 1	red flotation buoy - Scotsman ?
5 1	White foam
5 1	yellow foam chunk
5 1	yellow foam chunk
5 1	red flagging
5 1	red flagging
	Alaska border

Sub total: 35

Grand Total : 221

APPENDIX II

YUKON COAST 1986 TENT ISLAND TO ALASKA BORDER

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
		Tent Island
1	1	barrel
1	1	dredge collar
1	1	abandoned barge
1	1	brown foam and gas cache
1	1	barrel
1		left the Back End of Tent Island
1	1	5 gallon gas barrel
1	1	Scotsman buoy
1		Crossing Point of Land and Heading Inland
1		Crossed Channel onto another island
1	1	dredge collar
1	1	abandoned barge
1	1	brown foam chunk
1	1	barrel
1	1	brown foam
1	1	brown foam
1	. 1	brown foam
1	1	barrel
1	1	barrel
1	1	dredge collar (1/2)
1	?	barrels
1	1	barrel
1		Passing Whitefish Station
1	1	barrel
1	1	brown foam
1	1	dredge collar (1/2)
1	1	barrel
1	1	barrel
1	1	dredge collar (1/2)
1	1	barrel
1	1	barrel
1	1	brown foam
1	2	barrels
1	1	dredge collar (1/2)
1	1	brown foam
. 1	?	barrels
1	?	barrels
1	1	plastic
1	1	brown foam
1	1	dredge collar (1/2)
1	?	barrels barrels
1	?	dredge collar (1/2)
1	1	brown foam
1 1	1 ?	barrels
		barrels
1	?	barrels
. 1	?	brown foam
1	1	polyethylene plastic
1	1	barrels
1	?	plastic
1	1	prascre

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
1	1	white styrofoam
ī	?	barrels
1	i	white styrofoam
1	1	styrafoam
1	?	pieces of styrofoam
1	•	many pieces of styrofoam, apparently lost
7		from Shingle Point DEW line site.
4		
1	_	Shingle Point
1	?	styrafoam panels
1	?	barrels
1	1	barrel
. 1	1	brown foam
1	1	brown foam
1	1	brown foam
1	?	plastic oil containers
1	1	brown foam
1	1	wooden boat remnants
1	1	fuel drain
1	1	dredge collar (1/2)
1	1	brown foam
1	1	black polyethylene plastic
1	1	brown foam
1	1	brown foam
. 1	1	white styrafoam
1	1	brown foam
1	1	brown foam
1	1	orange plastic
1		fuel drum
1	1	dredge collar foam
1	1	white polyethylene plastic
1	?	fuel barrels
1		fish camp
1	1	brown foam
1		at begginning fo back side of Shingle Spit
1	1	old lead frame
1	?	barrels
1	1	styrafoam
1	1	scotsman buoy
1	_	end of Shingle Spit
1	1	dredge collar (1/2)
1	?	scotsman buoys
1	i	black polyethylene plastic
1	?	metal scraps
1	i	block of brown foam
1	?	numerous barrels along spit
1	: 1	brown foam
1	1	
	1	end of Spit
1	1	brown foam
1	1	dredge collar (1/4)
1	?	barrels
1	?	barrels
1	?	barrels

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
1	?	barrels
1	1	brown foam
1	1	barrel
1	1	barrel
1	1	brown foam
1	1	brown foam
1	1	black polyethylene plastic
1	1	poly rope
1	1	brown foam
1	1	barrel
1	?	barrels
1	?	barrels
1	1	brown foam
1	?	barrels
1	?	barrels
1		Sabine Point
1	1	brown foam
1	. 1	plastic
1.	1	brown foam
1	1	brown foam
1	1	scotsman buoy
1	1	blue poly rope
1	1	white styrafoam
1	1	yellow plastic
1	1	white styrafoam
1	1.	brown foam
1	1	brown foam
1	1	polyethylene sheet
1		approaching King Point From East
1	1	white styrafoam
1	1	white styrafoam
1	?	white plastic containers
1	1	brown foam
1	?	barrels
1	1	white plastic
1	1	propane bottle
1		West End of King Point Lagoon

80

Sub total (excluding barrels):

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
2		West end of King Point Lagoon
2	1	brown foam
2	1	orange plastic material
2	1	polyethylene sheet
2	1	polyethylene sheet
2	1	barrel
2	1	brown foam
2	1	plastic material
2	1	brown foam ,
2	1	brown foam
2	1	dredge collar (1/2)
2	1	dredge collar (1/2)
2	1	large old boat
2	1	barrel
2	1	orange plastic
2	1	yellow rope
2	1	brown foam
2 2	1	white plastic container
2	1	brown foam
2	1	barrel
2	1	marker buoy
2	1	orange polyethylene
2	1	brown foam
2 2 2	1	plywood piece
2	1	barrel
2	1	barrel
2	1	barrels
2	1	orange plastic
2	1	orange plastic
2	1	plastic oil container (1 L)
2	1	brown foam
2	1	brown foam
2	1	clear polyethylene sheet
2	1	white styrafoam
2	1	plastic oil container (1L)
2	1	brown foam
2	1	brown foam
2		tip of kay point along windward side of
		spit
2	1	clear polyethylene film
. 2	ī	orange plastic
2	1	brown foam
2	ī	barrel
2	1	yellow poly rope
-	_	across Phillips Bay

Sub total (excluding barrels) : 34

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
3		Phillips Bay
3	?	barrels
3	1	white plastic container
3	1	white styrafoam
3	1	orange polyethylene
3	?	barrels
3	1	plywood sheet
3	1	barrel
3		out on spit
3	1	barrel
3	1	tire
3	1	brown foam
3	1	tire
3	1	barrel
3	?	barrels
3	?	barrels
3	1	dredge collar (1/2)
3	?	barrels
3	1	red float marker
3	?	barrels
3	?	barrels
3 3	1	pipe
3		old fuel cache
3	1	brown foam
3	?	barrels
3	1	barrel
3	?	barrels
3	?	barrels
3		approaching Stokes Point, lots of barrels
		and plastic on beach.
3	1	propane cylinder
3	1	scotsman buoy
3	?	barrels
3		passing end of Stokes Point runway
3	1	brown foam
3		off lagoon at Stokes Point
3	1	plastic ribbon
3	?	plastic oil containers (1 L)
3	?	plastic oil containers (1 L)
3	1	yellow poly rope
3 3 3	?	barrels common along beach
3		end of Stokes Point lagoon
3	1	yellow/orange plastic film
3		Roland Bay
3	?	small bits of plastic
3	1	brown foam
3 .	?	barrels
3	1	brown foam
3 3 3 3 3	1	polyethylene film
	1	brown foam
3	1	yellow plastic float
. 3	1	plastic oil container

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
3	1	styrafoam
3	1	tire
	1	barrel
3 3	1	brown foam
3	1	white plastic container (4L)
	1	brown foam
3 3	1	barrel
3	1	old metal container
3	1	dredge collar (1/4)
3		plywood squares
3	?	brown foam
3	1	white plastic pail
3	1	brown foam
3	?	barrels
3 3	?	barrels
3	1	brown foam
3 3 3	1	plastic film
	1	white plastic container
3 3 3 3 3	1	white plastic container
3	1	yellow poly rope
3	?	barrels
3	1	brown foam
3	1	black plastic
. 3	?	barrels
3	1	brown foam
3	?	barrels
		Catton Point

Sub total (exluding barrels):

38

4		Osborne Point, Herschel Island
4		
4	1	white styrofoam
4	1	brown foam
4	1	white plastic pail
4	1	white styrofoam
4	1	oil container (4L)
4	1	plywood
4	1	blue poly rope
4	1	clear poly film
4	1	barrel
4		Herschel
4	1	plywood
4	? .	barrels
4	1	rope piece
4	1	styrofoam
4	1	scotsman buoy

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
4	1	dredge collar (1/2)
4	1	orange plastic
4	1	dredge collar piece
4	?	barrels
4	1	dredge collar (1/2)
4	1	barrel
4	1	brown foam
4	1	brown foam
4	. 1	plastic bag
4	1	brown foam
4	1	barrel
4	1	brown foam
4	1	plywood sheet
4	?	orange navigation aids
4	1	barrel
4	1	styrofoam block
4	?	navigation aids
4	1	yellow poly rope
4	1	poly sheet
4	1	barrel
4	1	poly rope
4	_	Osborne Point

Sub total (excluding barrels): 26

5		Catton Point
. 5	?	barrels
5	1	white styrafoam
5	?	barrels
5	1	styrafoam
5	?	barrels
5	1	styrafoam
5	ī	styrafoam
5	<u></u>	yellow poly rope
5	_ 1	styrafoam
5	• 1	yellow plastic sheet
5	1	yellow plastic sheet
5	1	wooden cable spool
5	1	
5 5	1	sheet of plywood
	1	barrel
5		Nunaluk spit at East end
5	1	white plastic container (5L)
5	1	sheet of plywood
5	1	white plastic container (5 L)
5	1	brown foam
5	1	dredge collar (1/2)
5	1	brown foam
5	÷ • • • • • • • • • • • • • • • • • • •	barrels
¥	.	Matters

Coment	Number	Description of Observation
_	Number of Items	Description of Observation
Number	OI Items	
5	1	yellow poly rope
5	?	barrels
5 .	1	brown foam
5	?	barrels
5	1	brown foam
5	1	barrel
5	1	white plastic container
5	1	barrel
5	1	brown foam
5	1	barrel
5	1	brown foam
5	1	metal container
5 5	1	metal scrap
5	1	black polyethylene film
5	? 1	barrels barrel
5	1	small barrel
5	?	barrels
. 5	•	end of Nunaluk Spit
5	?	barrels
5	?	barrels
5	?	barrels
5	•	barrels
5	?	barrels
5	?	barrels
5	1	dredge collar
5	$\bar{1}$	plastic
5	?	barrels
5	?	barrels
5	?	barrels
5	1	dredge collar (1/2)
5	1	scrap metal
5	?	barrels
· 5	?	crates
5		Komakuk beach DEW line station
5	1	barrel
5	1	large marker buoy
5	1	brown foam
5	1	metal float
5	1	barrel
5	1	barrel
5	1	barrel
5	. 1	brown foam
5	?	barrels
5	1	barrel
5	1	scotsman buoy
5	1	barrel
5	1	barrel

APPENDIX II YUKON COAST 1986

Tent Islamd to Alaska Border August 5

Segment Number	Number of Items	Description of Observation
5	1 .	barrel
5	1	brown foam
5	1	brown foam
5	?	barrels
5		west end of Clarence lagoon
5	?	barrels
5	1	mooring buoy
5	1	barrel
5	?	barrels
		Yukon / Alaska border

Sub total (excluding barrels): 38

Grand Total (excluding barrels): 190

APPENDIX III

YUKON COAST 1989 TENT ISLAND TO ALASKA BORDER

Tent Island	_	Number of Items	Description of Observation
	1 1 1	-	<pre>plastic bottle (1L) jerry can leaving Tent Island</pre>
1	-	. 1	
1	_		
1		_	
1		-	
1	_	-	
1			
1			
1	1		-
1	1		
1	1		
1	1		
1		2	
	1		
1	1	?	
1	1	1	
1	1		white fish station
1	1	2	plastic pieces
1	1	1	
1	1	1	-
1	1	1	white plastic bottle (1L)
1	1	1	brown foam
1	1	1	white plastic bottle (1L)
1 1 white foam 1 1 white plastic 1 1 foil 1 1 barrel 1 1 white life preserver 1 1 white life preserver 1 1 orange surveyors tape 1 1 plywood (lm x 2m) 1 1 brown foam 1 1 red gas tank 1 crossing channel 1 2 barrels 1 2 barrels 1 2 bue plastic 1 1 dredge collar 1 1 barrels 1 1 dredge collar	1	1	pop can
the second state of the se	1	1	white plastic bottle (1L)
crossing Blow River channels foil foil the preserver the p	_	1	
1	_	1	
1 1 barrel 1 1 white life preserver 1 1 orange surveyors tape 1 1 jerry can 1 1 plywood (lm x 2m) 1 1 brown foam 1 1 red gas tank 1 crossing channel 1 4 barrels 1 1 brown foam 1 22 barrels 1 2 blue plastic 1 1 dredge collar 1 1 dredge collar	_		
1 1 white life preserver 1 1 orange surveyors tape 1 1 jerry can 1 1 plywood (lm x 2m) 1 1 brown foam 1 1 red gas tank 1 crossing channel 1 4 barrels 1 1 brown foam 1 22 barrels 1 2 blue plastic 1 1 dredge collar 1 1 dredge collar		1	
1 1 orange surveyors tape 1 1 jerry can 1 1 plywood (lm x 2m) 1 1 brown foam 1 1 red gas tank 1 crossing channel 1 4 barrels 1 1 brown foam 1 22 barrels 1 2 blue plastic 1 1 dredge collar 1 1 dredge collar		1	
1 1 jerry can 1 1 plywood (lm x 2m) 1 1 brown foam 1 1 red gas tank 1 crossing channel 1 4 barrels 1 1 brown foam 1 22 barrels 1 2 blue plastic 1 1 dredge collar 1 1 dredge collar		-	
1 1 plywood (lm x 2m) 1 1 brown foam 1 1 red gas tank 1 crossing channel 1 4 barrels 1 1 brown foam 1 22 barrels 1 ? blue plastic 1 1 dredge collar 1 19 barrels 1 dredge collar			
1 1 brown foam 1 red gas tank 1 crossing channel 1 4 barrels 1 1 brown foam 1 22 barrels 1 ? blue plastic 1 1 dredge collar 1 19 barrels 1 dredge collar		_	
1 1 red gas tank 1 crossing channel 1 4 barrels 1 1 brown foam 1 22 barrels 1 ? blue plastic 1 1 dredge collar 1 19 barrels 1 1 dredge collar			
crossing channel crossi			
1 4 barrels 1 1 brown foam 1 22 barrels 1 ? blue plastic 1 1 dredge collar 1 19 barrels 1 1 dredge collar		T	
1 1 brown foam 1 22 barrels 1 ? blue plastic 1 1 dredge collar 1 19 barrels 1 1 dredge collar		1	-
1 22 barrels 1 ? blue plastic 1 1 dredge collar 1 19 barrels 1 1 dredge collar			
1 ? blue plastic 1 1 dredge collar 1 19 barrels 1 1 dredge collar			
1 1 dredge collar 1 19 barrels 1 1 dredge collar			
1 19 barrels 1 1 dredge collar			-
1 1 dredge collar			-
.			
- Dionii Louii			
1 2 orange foam			
1 1 orange tarp	-		
1 1 red channel marker			

Segment Number	Number of Items	Description of Observation
1	14	barrels
1	1	large piece of metal
1	1	red gas can
1		by hills, Shingle Point
1	6	barrels
1	1	brown foam
1	1	cardboard box
1	2	plywood pieces (2m x 2m each)
1	1	piece of white plastic
1	-	Shingle Point fuel cache
_	2	_
1	?	many barrels in gulley
1		Shingle Point
1	1	white foam
1	1	white foam
1	4	barrels
1	1	white plastic
1	1	net
1	1	white foam
1	1	yellow anti-freeze bottle
1	1	brown foam
1	1	yellow poly tart ($2m \times 2m$)
1	1	white plastic
1	4	plastic bottle (1 L)
1	3	cans
1	7	barrels
1	3	brown foam
1	2	barrels
1	7	plastic bottle (1L)
1	1	white foam
1	1	blue foam
1	1	piece of dredge collar
1	1	orange bottle
1	1	white bottle
1	1	white plastic
1	1	white plastic
1	2	brown foam
1	1	pop can
1	1	white foam
1	1	scrap metal
1	2	white foam
1	2	white plastic
1	1	brown foam
1	2	white foam
1	2	plastic bottle (1 L)
1	1	white plastic
1	1	plastic bottle (blue)
1		card board box
1	2	white foam
ī	1	blue foam
ī	ī	plastic bottle (1 L)
ī	1	white plastic
1	1	plastic bottle (1L)
	4	brancre nocere (III)

-	Number of Items	Description of Observation
1	?	scraps of poly.
1	1	blue plastic
1	1	yellow rope
1	1	dredge collar - whole
1	1	plastic bottle (1L)
1	1	plastic bottle (1 L)
	3	-
1		white foam
1	15	plastic bottle (1 L)
1	3	pieces of poly. sheets
1	1	orange rope
1	24	plastic bottle (1 L)
1	2	oil cans
1	1	gas can
1	1	tarp
1	2	white poly. sheets
· 1	2	pieces white plastic
1	1	white bottle
1	1	white foam
1	1	piece plywood
1	1	piece rope
1	1	can
1	1	brown foam
1	1	<pre>plastic bottle (1 L)</pre>
1	1	small plastic bottle
1	2	pieces poly.
1	1	large plastic bag
1	2	plastic bottle (1 L)
1	1	blue plastic
1	1	plastic bag
1	_	outer portion of Shingle Point
1	1	brown foam
1	10	plastic containers
1	3	pieces white plastic
1	2	dredge collar
1	1	plastic bottle (1 L)
1	2	plastic bags
1	1	scotsman buoy
1	2	plastic bags
1	1	life preserver
1	1	piece green plastic
1	3	plastic bottles (1 L)
1	2	white bottles
1	2	pieces white plastic
1	3 1	plastic bottles (1 L)
1		barrel
1	2	small bottles (orange)
1	1	barrel
1	1	blue rope
1	2	white foam
1	1	plywood
1	1	piece of net
1	1	orange bottle ($1 L$)

Segment Number	Number of Items	Description of Observation
1	1	plywood
1	1	blue foam
1	1	dredge collar fragment
1	1.	white plastic
1	1	white foam
1	1	piece clear poly.
1	1	barrel
1	1	plastic bottle (1 L)
ī	1	plastic bottle (1 L)
1	1	brown foam
1	1	barrel
1	1	barrel
1	1	blue foam
1	1	brown foam
1	1	yellow foam
1	2	barrels
1	1	white foam
1	?	dredge collar pieces
1	1	blue plastic
1	1	plastic bottle (1 L)
1	1	barrel
1	1	yellow plastic
1	1	white foam
1	1	barrel
1	1	white foam
1	1	tin can
1	1	white foam
1	1	piece clear poly.
1	1	white plastic
1	2	barrels
1	1	brown foam
1	1	white poly
1	1	yellow plastic
1	1	plastic bottle ($1 L$)
1	1	white plastic
1	. 1	poly.
1	1	plywood
1	2	barrel
1	3	white foam
. 1	1	blue plastic bottle (2L)
1	1	barrel
1	1.	netting
1	1	white foam
1	1	white plastic
1	1	5 gallon can
1	1	brown foam
1	. 1	thermos bottle
1	1	small piece orange plastic
1	4	barrels
1	2	orange plastic from dredge collar
1	1	white plastic
1	?	pieces white plastic

Tent Island to Alaska Border August 15, 16

Segment Number	Number of Items	Description of Observation
1	1	plastic bottle (1 L)
1	1	net
. 1	1	brown foam from dredge collar white foam
1	1 2	barrels
1	2	brown foam
1 1	1	plastic bottle (1 L)
1	1	white foam
1	1	bottle - green
1	1	white foam
1	1	brown foam
1	ī	blue poly.
1	1	clear poly
1	1	piece of channel marker
1	3	white foam pieces
1	1	clear poly
1	1	yellow foam
1	1	white foam
1	1	blue metal
1	1	bottle
1	1	white plastic
1	1	white foam
1	1	brown foam
1	1	dredge collar (1/2)
1	1	brown foam white plastic bottle
1	1	yellow plastic
. 1 1	1 1	plastic bottle (1 L)
1	1	brown foam
1	3	white foam
1	1	white plastic bottle
ī	ī	white plastic
ī	1	white plastic
1	1	detergent bottle
1	1	plastic
1	1	orange poly.
1	1	white foam
1	2	plastic bottle (1 L)
1	3	pieces foam
1	?	survey markers
1	7	pieces white foam
1	1	portion of dredge collar
1		King Point

Sub total : barrels - 96 other items - 324

Segment Number	Number of Items	Description of Observation
2		King Point
2	1	yellow rope
2	1	brown foam
		white bottle (2 L)
2	1	blue bottle (2 L)
2	1	
2	1	white foam
2	1	plastic bottle (1 L)
2	1	white plastic
2	1	white plastic
2	1	white, 5 gallon bucket
2	, 1	white plastic
2	1	red buoy
2	1	blue foam
2	4	white foam
2	1	white gas can
2	2	white foam
2	1	white foam
2	1	white foam
2	1	white bucket (2 L)
2	ī	yellow foam
2	2	pieces foam
2	1	barrel
2	1	white plastic
	5	bottles
2		
2	1	red plastic
2	3	plastic bottles (1 L)
2	1	white foam
2	1	bottle - orange
. 2	1	dredge collar
2	1	white foam
2	1	plastic
2	1	styrofoam cup
2	1	white foam
2	2	white plastic
. 2	1	blue foam
2	2	white foam
. 2	1	white foam
2	ī	brown foam
2	1	plastic bottle (1 L)
2	1	Wooden barge
2	?	white foam pieces
2	1	plastic bottle (1 L)
<u> </u>	1	white foam
2 2 2 2	1	brown foam - part of dredge float
2	4	white foam
2	12	pieces white foam
2	1	dark orange plastic
2	1	white plastic .
2	3	brown foam

Tent Island to Alaska Border August 15, 16

Sub

ust 15, 16		
Segment Number	Number of Items	Description of Observation
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	barrel blue rope white poly. white foam white foam white foam piece of thick orange rope white foam white foam white foam piece of rope - thick blue poly plastic bottle (1 L) styrofoam cup barrel plastic bottle (1 L) brown foam white plastic white foam blue foam blue foam blue dottle plastic bottle (1 L) brown foam blue foam white plastic white foam blue bottle plastic bottle (1 L) blue plastic foam from dredge collar survey stake plastic orange plastic Kay Point
	parrels - 3 other items - 10	- -
.33333333333333333333333333	1 1 1 1 5 1 3 2 1 1 2 1 6 2 1 1 1 7	Ray Point barrel barrel blue foam white foam white foam plastic bottle (1 L) barrels white foam dredge collar scotsman buoy blue foam brown foam barrels brown foam yellow rope red plastic white gas can white foam pieces

Segment Number	Number of Items	Description of Observation
3	1	clear poly
3	2	white foam
3		barrel
3	1	
3	1	piece of metal
3	1	blue poly
3	1	plywood
3	1	white foam
3	1	small bottle - red
3	1	5 gallon bucket
3	1	metal bucket
3	1	brown foam
		barrel
3	1	
3	1	piece of dredge collar
3	1	hard hat
3	2	barrels
3	1	white plastic
3	1	plastic bucket
3	1	metal box
3	1	tire
3	ī	broken dredge collar
2	1 .	tire
3 3 3	_	white foam
3	1	
3	1	barrel
_. 3	1	barrel
3 3 3 3 3	3	barrels
3	1	flagging tape
3	1	barrel
3	1	plastic bottle (1 L)
3	1	piece of poly.
3	1	green rope
3	ī	channel marker
3		barrel
	1	
3 3	1	barrel
	2	white foam
3 3	1	barrel
	1	barrel
3	1	blue plastic
3	1	buoy
3 3	2	plastic bottles
. 3	2	barrels
3	1	barrel
3		
3	1	white plastic
3	1	dredge collar (1/2)
3	3	barrels
3	?	brown foam
3 3 3 3 3 3	5	white foam
3	1	brown foam
3	1	white foam
3	2	white foam
3	7	barrels
3	3	plastic pails
3		
3	4	plastic bottles ($1\ L$)

Segment Number	Number of Items	Description of Observation
3	60	barrels
3	1	sheet metal
3	1	brown foam
3	22	barrels
3	1	brown foam
3	1	orange poly.
3	1	clear poly
3	1	yellow rope
3	2	dredge collars
3 3	2	barrels
	4	brown foam
3	1	white foam
3 3 3	1	plastic bottle (1 L)
3	1	barrel
3	1	small red bottle
3	3	barrels
	1	white plastic
3 3	1	brown foam
3	2	barrels
3	1	white foam
3 3	1	net float
3	1	piece of poly
3	?	floats from a net
3	1	white plastic
3	2	barrels
3 3	1	plastic jug (2L)
3	1	white foam
3	1	white plastic
3	1	white foam
. 3	4	barrels
3	1	clear poly
3	2	white plastic
3 3	1	blue foam
3	· 1	plastic milk crate
3	1	white plastic bag
3	1	plastic milk jug
3	1	white foam
3	1	yellow rope
3	1	orange plastic
3	3	barrels
3	1	tire
3	1	poly sheet
.3	· 1	plastic bottle
3	1	brown foam
3	1	white pail
3 3 3 3 3 3 3 3	1	plastic bottle (1 L)
3	1	red plastic
3	1	white plastic
3	1	barrel
3 3	1	orange plastic
3	ī	blue foam
3	1	white plastic
-	=	• = ·

Tent Island to Alaska Border August 15, 16

	Number of Items	Description of Observation
3	1	large plastic box
	1	brown foam
3	2	dredge collars
3	1	white foam
3 3 3 3 3 3 3	1	poly sheeting
3	1	sheet metal
3	1	red plastic
3	1	white plastic
3	1	brown foam
3	2	yellow foam
3	4	barrels
3	1	white plastic
3	1	<pre>plastic bottle (1 L)</pre>
3	2	net floats
3	5	barrels
3	1	brown foam
3	1	white foam
3	- 2	<pre>plywood pieces (large)</pre>
3 3 3 3	1	white foam
3	1	blue bottle
3	1	plastic bottle (1 L)
3	1	white bottle
3	2	barrels
_. · 3	1	<pre>plastic bottle (1L)</pre>
3	1	foam from dredge collar
3	1	yellow foam
3	1	yellow rope (very long)
3	1	outer piece of dredge collar
3 3 3 3 3	1	plastic bottle (1 L)
3	2	barrels
3	1	piece of white plastic
3	1	piece sheet metal
3		Catton Point

Sub total : barrels - 149 other items - 147

4		starting counter-clockwise survey of Herschel Island
4	1	plastic bottle (1 L)
4	1	barrel
4	1	white foam
4	?	white foam pieces
4	1	white bottle
4	1	orange bottle
4	1	net float
4	1	blue rope
4	. 1	white foam
4	1	piece of twisted metal
4	1	dredge collar (1/4)
4	1	bit of red plastic from dredge coll
4	1	orange plastic

Tent Island to Alaska Border August 15, 16

4 1 blue foam 4 1 common barrels 4 1 common barrels 4 1 common foam from collar 4 1 brown foam from collar 5 brown foam from collar 6 1 black, hard plastic (large) 7 dredge collar 8 dredge collar 9 starting inner part of spit	Segment Number	Number of Items	Description of Observation
barrel blue foam barrel blue foam barrel blue foam barrels lo barrels dredge collar rope lo crange plastic prown foam from collar barrel lo barrel lo barrel lo crange plastic lo brown foam from collar lo barrel lo dredge collar	4	1	
blue foam barrel blue foam blue foam blue foam blue foam loue foam	4	1	blue foam
barrel blue foam blue foam barrels dredge collar frope foam from collar foam from collar foam foam from collar foam foam from collar	4	1	barrel
blue foam blue foam barrels dredge collar rope ro	4	1	blue foam
dedge collar dredge collar rope definition from collar	4	1	barrel
dredge collar rope rope rope roange plastic brown foam from collar barrel rope roange plastic roange plastic roange plastic roange plastic roange	4	. 1	blue foam
1 rope 4 1 orange plastic 4 1 brown foam from collar 4 1 black, hard plastic (large) 4 1 dredge collar 4 1 dredge collar 4 1 dredge collar 4 1 dredge collar 4 1 gellow rope 4 1 foam from dredge collar 4 1 barrels 4 1 barrels 5 yellow rope 6 1 foam from dredge collar 7 barrels	4	10	barrels
4 1 orange plastic 4 1 brown foam from collar 4 1 barrel 4 1 dredge collar 4 1 dredge collar 4 1 dredge collar 4 1 dredge collar 4 1 parrels 4 1 parrels 4 1 parrels 5 parrels 6 parrels 7 parrels	4	1	dredge collar
brown foam from collar barrel black, hard plastic (large) dredge collar barrels dredge collar barrels	4	1	rope
barrel black, hard plastic (large) dredge collar barrels dredge collar dredge collar barrels	4	1	orange plastic
black, hard plastic (large) dredge collar	4	1	brown foam from collar
4 1 dredge collar 4 1 dredge collar 4 1 dredge collar 4 4 barrels 4 1 yellow rope 4 1 foam from dredge collar 4 3 barrels	4	1	barrel
4 1 dredge collar 4 1 dredge collar 4 1 dredge collar 4 4 barrels 4 1 yellow rope 4 1 foam from dredge collar 4 3 barrels	4	1	black, hard plastic (large)
dredge collar	4	1	
4 1 dredge collar 4 4 barrels 4 1 yellow rope 4 1 foam from dredge collar 4 3 barrels	4	1	dredge collar
4 4 barrels 4 1 yellow rope 4 1 foam from dredge collar 4 3 barrels	4	1	
4 1 foam from dredge collar 4 3 barrels	4	4	
4 1 foam from dredge collar 4 3 barrels	4	1	yellow rope
4 3 barrels			foam from dredge collar
4 starting inner part of spit	-	3	
	4		starting inner part of spit
4 1 barrel	_	1	
4 1 tire	4	1	tire
4 1 white foam	_	1	white foam
4 1 blue foam	4	1	blue foam
4 1 white bottle	-	-	white bottle
4 1 white plastic	_	_	
4 1 yellow foam	-		
4 2 barrels	_		
4 1 white foam	-		white foam
4 1 dredge collar	-	_	
4 Lopez Point	-	-	
4 2 barrels	-	2	-
4 1 white plastic (large piece)	-		white plastic (large piece)
4 1 barrel	-		
4 1 white foam	_		white foam
4 1 white foam	_ ,		
4 1 orange rope	-	_	
4 1 barrel	_		
4 1 barrel	-	_	
4 Catton Point	_	-	Catton Point

Sub total : barrels - 29 other items - 37

Segment Number	Number of Items	Description of Observation
5		Catton Point
5	1	barrel
5	1	brown foam
5	1	yellow foam
5	1	white foam
5	1	white bucket
5	?	white foam (many pieces)
5	1	barrel
5	10	white foam
5	1	barrel
5	1 .	white foam
5	1	barrel
5	1	white foam
5	1	barrel
5	1	white foam
5	2	white foam
5	1	dredge collar (broken)
5	. 2	white foam
5	1	barrel
5	7	white foam
5	3	white foam (large pieces)
5	1	brown foam
5	1	float
5	1	white foam
5	1	barrel
5	1	brown foam barrel
5	1	
5	1	poly. yellow plastic
5	1 1	clear poly
5 5	1	float
5	1	barrel
5	1	barrel
5	i	blue plastic
5	1	barrel
5	ī	clear poly
5	ī	white plastic bag
	· 1	barrel
5 5 5	1 2	barrels
5	3	barrels
5	1	white plastic pail
5 5 5 5		Nunakluk Spit
5	1	flagging tape
5	1	white plastic
5	1	barrel
5 5 5 5 5	1	barrel
5	1	barrel
5	4 .	barrels
5	1	brown foam
5	1	metal from barrel
	1	metal from barrel
_. 5	3	barrels

Segment Number	Number of Items	Description of Observation
5	1	brown foam
5	1	barrel
5	1	blue plastic
5	1	white plastic
5	1	barrel
5	1	brown foam
5	1	brown foam
5	1	white plastic
5	1	barrel
5	1	yellow plastic
5	2	barrel
5	1	barrel
5	1	barrel
5	1	black poly (large piece)
5	1	barrel
5	1	yellow foam
5	1	white foam
5	1	barrel
5	. 1	blue rope
5	1	barrel
5	1	white foam
5	1	blue plastic
5	1	brown foam
. 5	1	yellow rope
5 5	1	brown foam
5	2 1	barrels white foam
5	1	barrel
5	1	white plastic
5	1	barrel
5	1	barrel
5	1	blue foam
5	1	poly
5	3	barrels
5	1	surveyors stick
5	i	barrel
5	1	blue foam
5	1	barrel
5	21	barrels
5	1	large, black, plastic tarp
5	1	barrel
5	1	portion of barrel
5	1	brown foam
5	1	blue poly
5	1	blue foam
5	1	styrofoam cup
5	2	white foam
5	1	poly
5	1	blue foam
5	1	blue foam
5	1	brown foam
5	1	portion of barrel

Tent Island to Alaska Border August 15, 16

Segment Number	Number of Items	Description of Observation
5	1	brown foam
5	1	white foam
5	1	blue plastic
5	1	black mat
5	1	white foam
5	1	blue foam
5	1	blue plastic
5	1	white foam
5	1	blue plastic
5	1	blue foam
5	4	barrels
5	1	black poly
5	1	brown foam
5	2	white foam
5	3	plastic bottle (1 L)
5	1	blue foam
5	1	white foam white foam
5 5	1 3	blue foam
	1	white foam
5 5	1	barrel
5	17	barrels
5	1	brown foam
5	2	white foam
5	5	barrels
5	ĺ	blue foam
5	1	white foam
5	8	barrels
5	3	barrels
5	6	barrel
5	1	dredge collar
5	2	blue foam
5	1	white foam
5	1	orange rope
5		Komakuk Beach
5	6	barrels
5	1	white foam
5	1	brown foam
5	1	styrofoam cup
5	7	barrels
5	1	scotsman float
5	1	white plastic white foam
5 5	1 4	barrels
5	1	blue foam
5 5	1	blue rope
5	1	orange plastic
5	· 1	blue poly
5	4	blue foam
5	1	white foam
5	1 .	blue foam
. 5	2	plastic bags
	-	.

Segment Number	Number of Items	Description of Observation
5	12	barrels
5	1	blue foam
5	1	blue rope
5	1	poly
5	2	blue foam
5	1	foam float
5	2	blue foam
5	1	orange plastic
5	1	yellow foam float
5	1	styrofoam cup
5	ī	barrel
5	1	white plastic
5	1	plastic bag
5	2	yellow foam
5	1	blue foam
5	1	white foam
5	15	white foam pieces
5	8	barrels
5	2	blue foam
5	1	yellow foam
. 5	1	barrel
. 5 5	1	
5	6	styrofoam cup barrels
5	2	
5		blue foam
5 5	1	yellow foam
5 5	1	white foam
	?	small pieces of foam
5	4	blue foam
5	25	pieces of foam
5	1	black poly
5	1	large piece foam
5	9	barrels
5	5	foam
5	2	blue foam
5 5 5	1	barrel
	8	foam
5	4	small, yellow foam
5	1	plastic bag
5	1	flagging tape
5 5	6	small foam pieces
5	1	yellow foam
5 5	1	blue tarp
5	2	barrels
5	1	bottle
5	1	green plastic disk
5 5 5 5	8	yellow foam
5	19	foam
5	1	buoy
5	1	black tarp
5 5 5 5	1	plastic bag
	5	blue foam
5	1	black tarp
		-

APPENDIX III YUKON COAST 1989

Tent Island to Alaska Border August 15, 16

Segment Number	Number of Items	Description of Observation
5 5 5 5 5 5 5 5 5 5 5 5 5	1 2 16 1 1 1 4 1 26 2	flagging tape brown foam foam orange plastic orange foam blue foam foam barrel foam white foam blue foam Alaska / Yukon border

Sub total : barrels - 152

other items - 341

Grand Total : barrels - 329

other items - 953

APPENDIX IV

YUKON COAST 1989 TENT ISLAND TO ALASKA BORDER

Tent Island to Alaska Border August 15, 16

Segment Number	Number of Items	Description of Observation
1 1 1	3 1 2	Shingle Point barrels orange plastic barrels
1 1 1	1 1 1	<pre>barrel blue plastic barrel</pre>
1 1	1 1	white foam brown foam white foam
1 1 1	2 1 2	<pre>plastic bottle (1 L) brown foam</pre>
1 1 1	1 1 2	orange poly red plastic plastic bottle (1 L)
1 1 1	1 1 1	<pre>white float red plastic plastic bottle (1 L)</pre>
1 1	2 2 1	red plastic white foam brown foam
1 1 1	1 1	blue plastic black poly
1 1 1	2 1 1	white foam brown foam white poly
1 1 1	2 1 1	<pre>plastic bottle (1 L, blue) white poly white foam barrel</pre>
1 1 1	1 1 1	blue plastic plastic bottle barrel
1 1 1	1 1 4	<pre>plastic bottle (1 L) white bottle plastic bottle (1 L)</pre>
1 1 1	1 1 1	white foam metal brown foam
1 1	1 1 1	white foam red plastic white foam
1 1 1	1	flagging tape white plastic
1 1 1	2 1 5	<pre>clear poly plastic bottle plastic bottle (1 L) stove oil can (4 L, metal)</pre>
1 1 1	1 1 1	cup white plastic
1 1 1	1 8 1	yellow bag plastic bottle (1 L) white plastic

-	Number of Items	Description of Observation
1	1	white poly
1	1	white container
1	1	<pre>camp and garbage (not counted)</pre>
1	1	white foam
1	1	net buoy (green foam)
1	1	white foam
1	1	red plastic
1	1	orange plastic
1	2	plastic bottle (1 L , blue)
1	2	barrel
1	1	white foam
1	1	orange pail
1	1	barrel
1	7	white foam
$\bar{1}$	1	brown foam
1	1	barrel
1	1	plastic bottle (1 L)
1	ī	plastic bottle (1 L , blue)
1	2	white foam
ī	1	barrel
1	1	white foam
1	1	dredge collar
1	1	blue plastic (large)
1	4	barrel
1	2	white foam
î	1	brown foam
1	2	plastic bottle (1 L)
1	1	plastic container (white)
1	6	white foam
1	3	barrel
1	1	brown foam
1	1	white foam
1	1	brown foam
1	6	barrels
1	1	white foam
1	4	barrels
1	1	white foam
1	1	plastic bottle (1 L)
1	1	white container
1	1	white foam
1	1	barrel
1	1	plastic bottle (1 L)
1	4	barrels
1	1	barrers brown foam
1	1	red plastic
1	1	brown foam
1	8	White foam
1	1	
1	1	cup
1	1	plastic bottle (1 L , white)
_	2	plastic bottle (1 L)
1		brown foam
1	1	barrel

Tent Island to Alaska Border August 15, 16

Segment Number	Number of Items	Description of Observation
3	1	Phillips Bay foam
3	1	
3 3	1	white foam
3	1	plastic bottle (1 L) barrels
3	3 1	plastic bottle (1 L)
3	1	plastic bottle (1 L)
3 3 3	12	barrel
3	1	metal
3	2	barrel
3	7	barrel
3 3 3	2	white foam
3	2 2	dredge collars
3	5	barrels
3	4	barrels
. 3 3	1	red container
3	3	barrels
3	2	barrels
3		barrels
. 3	1	ship's bumper (white)
3	1	propane bottle
3 3	1	barrel
3	1	plastic bottle (1 L)
3	1	red plastic
3 3	1 1	plastic bottle ($1\ extsf{L}$) white foam
3	1	tire
3 3	2	barrels
3	1	orange poly
3	1	white foam
3	1	barrel
3 3	1	plastic bottle (1 L)
3	1	dredge collar
3	1	barrel
3	1	jerry can
3	1	barrel
3	1	red plastic
3	3 1	barrel black poly
3 3 3 3	4	barrel
3	1	black tarp (long)
3	1	black poly
3	3	barrel
3	6	barrel
3	1	plastic bottle (1 L)
3	1	barrel
3	1	white plastic
3	1	barrel
3 3 3 3	2	red plastic
	1	plastic container (white)
3	1	metal
3	1	barrel

Tent Island to Alaska Border August 15, 16

Segment	Number	Description of	Observation
Number	of Items		

3 Catton Point

Sub total : barrels - 67 other items - 32

		•
4		Herschel Island, counter-clock wise
•		from spit
4	1	barrel
4	ī	barrel
4	1	brown foam
4	ī	plastic bottle (1 L)
4	2	markers
4	1	brown foam
4	1	blue bottle
4	1	brown foam
4	1	white foam
4	2	barrel
4	4	barrel
4	2	white foam
4	1	dredge collar
4	ī	barrel
4	3	plastic bottle (1 L)
4	1	white foam
4	1	barrel
4	2	white foam
4	1	plastic pail (blue)
4	1	white container
4	ī	barrel
4	1	dredge collar
4	1	plastic bottle (1 L)
4	ī	barrel
4	<u>.</u>	barrel
4	ī	barrel
4	1	barrel
4	- 6	barrel
4	ĺ	dredge collar
4	2	barrel
4	3	barrel
4	1	pail
4	3	barrel
4	i	brown foam
4	$\overline{1}$	dredge collar
4	1	barrel
4	2	barrel
4	1	dredge collar
4	4	barrel
4	ı 1	red plastic
4	_ 1	brown foam (large piece)
4	2	barrel
-	=	

Tent Island to Alaska Border August 15, 16

Segment Number Description of Observation
Number of Items

4 Catton Point

Sub total : barrels - 38 other items - 28

		Catton Point
5	3	red plastic
5	1	barrel
5	1	barrel
5	1	brown foam
5	1	plastic bottle (1 L)
5	1	brown foam
5	1	blue foam
5	1	barrel
	3	white foam
5		barrel
5	7	
5	1	white foam
5	1	barrel
5	2	white foam
5	1	metal
5	1	scotsman buoy
5	1	plastic bottle ($1 L$)
5	1	barrel
5	1	plastic bottle (1 L)
5	1	barrel
5	1	white foam
5	1	barrel
5	1	white foam
5	1	wooden dock
5	1	barrel
5	2	barrel
5	1	tire
5	1	barrel
5	3	barrel
5	1	white pail
5	1	orange poly
5	2	barrel
5		tire
5	1	
5	7	barrel
5	1	metal
5	5	barrel
5	1	pail
5	1	barrel
5	1	black tarp
5	2	barrel
5	3	barrel
5	1	red plastic
5	4	barrel
5	3	barrel
5	17	barrel
5	1	white foam
-	_	

Tent Island to Alaska Border August 15, 16

Segment Number Number of Items	Description of Observation
Number of remi	
5 2	barrel
5 15	barrel
5 4	barrel
5 1	barrel
5 3	barrel
5 2	barrel
5 2	barrel
5 1	white foam
5 3	barrel
5 9	barrel
5 1	orange marker
5 3	barrel
5 1	barrel
5 1	orange rope
5 2 5 6	barrel
5 6 5 5	barrel barrel
5 1	metal
5 3	barrel
5 2	barrel
5 2	black tarp
5 10	barrel
5 1	barrel
5 1	barrel
5 3	barrel
5 1	barrel
5 1 5 1	white foam
5. 1	black poly
5 1	blue foam
5 8	barrel
5 1	<pre>plastic bottle (1 L)</pre>
5 2	barrel
5 1	white foam
5 1	white plastic container
5 5	barrel
5 1	white foam
5 2	dredge collar
5 4	barrel
5 1 5 9	plastic bottle (1 L)
5 9 5 1	barrel
5 1	white foam plastic bottle (1 L)
5 3	white foam
5 4	barrel
5 1	white foam
5 1	red plastic
5 1	brown foam
5 1	blue foam
5 4	white foam
5 3	barrel
5 6	barrel
5 2	barrel

Tent Island to Alaska Border August 15, 16

Segment Number	Number of Items	Description of Observation
5	3	white foam
5	1	plastic bottle (1 L)
5	1	white foam
5	· 4	barrel
5	1	white foam
5	1	blue foam
5	1	barrel
5	1	blue foam
_. 5	2	barrel
5	1	marker
5	1	white foam
5	7	barrel
5	1	foam
5	1	blue foam
5	1	white foam
5	1	small white bottle
5	2	blue foam
5	. 2	barrel
5	2	white foam
5	6	barrel
5	2	white foam
5	1	<pre>marker buoy (large, white)</pre>
5	1	white foam
5	· 1	white foam
5	2	brown foam
5	2	white foam
5	7	white foam
5	1	blue foam
5 ,	1	barrel
5		Yukon / Alaska border

Sub total : barrels - 220 other items - 93

Grand Total : barrels - 415.

other items - 307

APPENDIX V

NWT COAST 1989 YUKON / NWT BORDER TO NUVORAK POINT

Segment Number	Number of Items	Description of Observation
		Tuktoyaktuk
6	4	barrels
6	1	dredge collar
6	1	oil can
6	4	barrels
6	1	tire
6	2	white plastic bottle (1L)
6	1	metal can
6	1	dredge collar
6	4	metal cans
6	1	white plastic bottle (1L)
6	2	white plastic
6	?	flagging tape
6	1	dredge collar pieces
6		Peninsula Point
6	?	outer pieces of dredge collar
6	1	black plastic
6	?	small scrap metal
6	1	white gas can
6	1	barrel
6	1	piece of metal
. 6	1	plastic tub
. 6	2	white foam
6	1	piece of sled
6	1	white gas can
6	1	orange plastic
6	1	yellow plastic
6	. 1	small piece of plywood
6	?	yellow rope fragments
6	1	white plastic bottle (1 L)
6	1	small plastic bottle
6	1	blue foam
6	1	small metal scrap
6	1	small metal scrap
6	1	foam
6	5	barrels
6	3	white gas cans
6	1	white plastic bottle (1 L)
6	1	piece blue foam
6	1	white polyethylene sheet
6	1	white plastic bag
6	1	white polyethylene sheet
6	2	white foam piece
6	2	rusted cans
6	3	white plastic piece
6	1	flagging tape
6	1	blue foam piece
6		Canyon Neck Inlet
6	1	white foam piece
6	1	barrel
6	1	white plastic bottle (1 L)

Segment Number	Number of Items	Description of Observation
6	1	navigational buoy
- 6	1	white gas can
6	1	barrel
6	1	scotsman float
6	1	tire
6	1	barrel
6	1	plastic bag (yellow)
6	1	plastic bottle (1 L)
6	1	lid from plastic pail
. 6	1	plastic bottle (1 L)
6	· 1	yellow margarine tub
6	1	small piece plastic
6	1	plastic bottle (1 L)
6	3	foam pieces
6	1	plastic bottle (1 L)
6	1	yellow plastic bag
6	1	white gas can
6	4	plastic bags
6	1	polyethylene sheet
6	1	white foam piece
6	1	flagging tape
6	1	white gas can
, 6	1	barrel
6	1	barrel
6	1	propane bottle
6	1	marker buoy
6	1	plastic bottle (1 L)
6	1	rope, yellow
6	1	dredge collar, in bag
6	1	yellow bag
6	1	brown foam
6	1	flagging tape
6	1	small, orange plastic container
6	1	tin can
6	1	brown foam
6	1	flagging tape
6	1	plastic bottle (1 L)
6		approaching white fish station
• 6		quite a bit of litter around station
6	8	barrels
6	1	foam piece
6		SW corner Hendrickson Island
6	1	barrel
6	1	plastic bottle (1 L)
6	1	white plastic
6		small shack with garbage around it
6	1	orange plastic
6		camp with small amount of garbage
6	, 1	orange polyethylene bag
6	1	plastic bottle (1 L)
6	1	white foam (small piece)
*		

Segment Number	Number of Items	Description of Observation
6	1	large polyethylene sheet
6	ī	piece of metal
6	ī	scotsman buoy
6	1	barrel
6	1	plywood piece
-	1 .	marker buoy
. 6	_	white foam
6	1	
6	. 1	white plastic container
6	2	black plastic garbage bags (full)
6	1	white foam
6	1	axe
6	1	barrel
6	1	plastic bottle (1 L)
6	1	polyethylene sheet ($2m \times 1m$)
6	1	plastic piece
6	1	plastic bottle (small)
6	1	oil can
6	1	<pre>plastic bottle (small, blue)</pre>
6		Richardson Island
6	1	white foam
6	1	flagging tape
6	i	yellow rope (long)
6	1	red rope
	1	white foam
6		net
6	1	
6	1	white plastic plastic bottle (1 L)
6	1	plastic bottle (I ii /
6	1	clear polyethylene sheet
6	1	flagging tape
6	1	foam
6	1	orange plastic
6	1	dredge collar fragment
6	1	scotsman buoy
6	1	piece of dredge collar
6	1	dark red plastic piece
6	2	barrels
6	1	barrel
6	1	white foam
6	1	barrel
6	1	plywood piece
6	1	large orange tank
6	3	white foam squares
6	3	cans
6	1 .	tire
6	1	white plastic
6 .	ī	barrel
6	1	plastic bottle , green - blue
6	i	brown foam
6	1	plastic bag
6	1	net scrap
	1	barrels
_. 6	Τ.	DOFFCTO

Segment Number	Number of Items	Description of Observation
6	1	plastic pail
6	1	plastic bottle (1 L)
6	1	piece of rope
6	4	white foam
6	1	plastic bottle (red)
6	1	piece of plastic
6	1	polyethylene sheet
6	· 1	brown foam
6	ī	white gas can
6	1	small plastic container (red)
6	10	pieces white foam
6	1	piece blue foam
6	1	marker
6	10	pieces white foam
6	1	piece of plywood
6	1	life preserver
6	2	scotsman buoy
6	1	white buoy
6	1	white foam
6	2	brown foam
6	2	white foam
6	2	yellow foam
. 6	?	white foam
. 6	1	_ ·
6	1	plywood (1m x 1m) brown foam
6	15	
6 .	1	pieces white foam barrel
6		
_	2	plastic bottle (1L)
6	1	white plastic pail
6	4	white foam
6	1	plywood (1m x 1m)
6	1	orange buoy
6	1	dredge collar
6	3	white foam pieces
6	2	white plastic containers (small)
6	2	large tanks
6	7	white foam pieces
6	1	orange plastic
6	1	white foam
6	2	white plastic
6	1	orange plastic
6	1	plastic bottle (1 L)
6	?	white foam
6	?	white foam
6	1	white foam
6	1	scotsman buoy
6	1	white plastic
6	1	orange life preserver
6	1	brown foam
6	2	foam pieces
6	1	dredge collar, broken

Segment Number	Number of Items	Description of Observation
6	2	white foam
6	1	plywood (1m x 1m)
6	ī	plywood
6	1	blue plastic
6	13	white foam pieces
6	9	white foam
6	2	brown foam
6	1	barrel
6	1	flagging tape
6.	5	white foam (small pieces)
6	1	bottle
6	1	brown foam
6	15	white foam (very large pieces)
6	1	scotsman buoy
6	4	white foam pieces
6	1	white foam
6	5	white foam
6	1	scotsman buoy
6	1	plastic bin
6	1	flagging tape
6	2	white foam
6	1	plastic bottle (1 L)
6	1	dredge collar piece
6	1	white foam
6	1	white plastic
6	1	white foam
6	1	brown foam
6	1	white foam
6	1	blue foam
6	1	clear polyethylene sheet (2m x 1m
6	1	jerry can
6	1	white foam
.6	3	white foam
6	1	white foam
6	1	plywood piece
6	2	white foam
6	1	<pre>plastic bottle (red)</pre>
6	2	white foam
6	1	barrel top
6	1	plywood (2m x 1 m)
6	1	blue foam
6	1	barrel
6	2	white foam
6	1	blue foam piece
6	1	blue foam
6	1	plywood
6	2	white foam
6	1	plastic bottle (1 L)
6	1	oil can (orange)
6	1	blue foam
.6	1	plywood sheet

Segment Number	Number of Items	Description of Observation
6 6 6	1 1 1	white plastic white foam white foam
6	7	white foam
6	í	white foam
6	2	white foam
6	3	blue foam
6	1	blue foam
, 6	1	yellow/orange foam
6	1	yellow foam
6	1	yellow foam
6 6	1	yellow foam oil can
6	1	scotsman buoy
6	1	bottle (small)
6	?	yellow foam
6	1	plastic bottle (1 L)
6	. 1	white bottle (small)
6	1	yellow plastic bottle
6	?	small pieces of foam
6	1	foam
6	1	barrel
6 6	1	blue plastic
6	1 1	black polyethylene sheet white foam
. 6	1	dredge collar
6	1	plastic bottle (1 L)
6	5	foam pieces
6	1	plastic bottle (1 L)
6	2	plastic bottle (1 L)
6	10	blue foam pieces
6	1	blue foam
6	1	plastic
6	1	plastic
6 6	1 1	blue foam
6	1	plastic pail (white) blue foam
6	1	blue foam
. 6	2	barrels
6	_ 1	black polyethylene sheet
6	2	polyethylene sheets
6	1	small bottle
6	1	barrel
6	1	white foam
6	1	brown foam
6	1	black polyethylene
6 6	1 1	yellow polyethylene
6	1	green polyethylene white foam
6	1	white foam
6	1	white foam
	**	WILLCO LOUIN

Segment Number	Number of Items	Description of Observation
6	1	clear polyethylene
6	10	black polyethylene
6	2	barrel
6	1	brown foam
6	1	white foam
6	1	blue polyethylene
6	5	white foam pieces
6	1	clear polyethylene
6	1	blue foam
6	1	blue foam
6	1	tarpaulin
6	2	white foam
6	1	blue foam
6	2	pieces brown foam
6	?	pieces white foam ·
6	1	blue foam
6	1	white plastic
6	1	barrel
6	1	brown foam
6	1	black polyethylene
6	1	plastic bottle (1 L)
6	1	white foam
6	1	blue foam
6	1	blue foam
6	ī	white foam
6	1	dredge collar piece
6	2	white foam
6 ·	2	plastic bottle (1 L)
6	2	propylene bottles
6	1	plywood
6	1	white plastic
6	1	blue plastic
6	1	barrel
6	1	wooden dock
6	1	white foam
6	1	blue plastic
6	1	white foam
6	1	barrel
6	1	1/2 cylinder of white foam
6	1	black polyethylene
6	1	blue foam
6	1	foam
6	1	white foam
6	1	white foam
6	1	scotsman buoy
6	1	white plastic
6	1	jerry can
6	1	plastic bottle (2L)
6	2	plastic bottle (1L)
6	1	wood, painted white
6	5	barrels

Tuktoyaktuk to Yukon Border August 15-17

Segment Number	Number of Items	Description of Observation
6	1	styrofoam cup
6	3	scotsman floats
		Yukon Border

Sub total : barrels: 51

other items: 489

McKinley Bay to Nuvorak Point August 18

Segment Number	Number of Items	Description of Observation
7 7	11 3	McKinley Bay propane bottles barrels
7 7 7	1 2	white bucket floats
7 7	1 1 1	sheet of poly white plastic white foam
7 7 7	1 2 1	<pre>marker buoy plywood pieces (2m x 2m) large sheet of poly</pre>
7 7	1	barrel clear poly
7 7 7	1 1 1	tire sheet of poly plastic bottle (blue)
7	2 1	barrels yellow rope
7 7 7	1 2 1	orange pail plastic bottle (blue) yellow plastic bag
7 7	2 1	pieces white poly piece black poly
7 7 7	1 1 1	yellow rope piece scrap metal orange plastic
7 7 7	1 1	white poly plastic bottle (1 L)
7 7	1 1 1	scotsman float barrel yellow pail
7 7	1 1	yellow rope orange tarp

McKinley Bay to Nuvorak Point August 18

Segment Number	Number of Items	Description of Observation
7	3	brown foam
7	1	brown foam
7	. 1	barrel
7	2	pieces plywood
7	1	scotsman buoy
7	2	barrels
7	1	barrel
7	ī	orange poly
7	1	black poly
7	1	white bucket
7	1	clear poly
7	1	white 5 gallon pail
7	1	channel marker
7	1	clear poly
7	1	white hard plastic
7	1	white bucket
7	2	blue poly
7	1	clear poly
7	1	portion of a dredge
7	1	barrel
7	1	portion of dredge collar
7	1	barrel
7	2	white foam
7	1	barrel
7	1	barrel
. 7	1	scotsman buoy
7	2	brown foam
7	1	orange poly
7	1	scotsman buoy
7	1	white bucket
7	1	tire
. 7	. 1	orange plywood
7	2	small buoys
. 7	1	tank
7	1	scotsman buoy
7	2	barrels
7	1	part of collar
7	3	barrels
7	1	lifeboat
7	1	green plastic ring
7	1	blue poly
7	1	scotsman buoy
7	. 1	large orange metal buoy
7	1	barrel
7	1	brown foam
7	1	orange plastic
7	3	barrels
7	1	portion of dredge collar
7	1	woven tarp
7	1	barrel
7	1	yellow rope

McKinley Bay to Nuvorak Point August 18

Segment Number	Number of Items	Description of Observation
7	2	scotsman buoys
7	12	propane bottles
7	1	barrel
7	1	white foam
7	1	brown foam
7	1	green poly
7	1	red poly
7	ĩ	large metal chain marker
7	1	life preserver
7	1	thick yellow rope
7	1	barrel
	-	·-
7	1	barrel
7	1	yellow buoy
7	2	brown foam
7	1	white poly
7	1	scotsman buoy
7	1	dredge collar
7	1	barrel
7	1	brown foam
7	1	brown foam
7	1	large sheet white poly
7	1	brown foam
. 7	1	part of collar
. 7	1	large plastic tarp
7	1	large plastic tarp
7	ī	white plastic
, 7	1	black plastic
7	1	
7	1	gerry can tire
7	1	
		life preserver
7	1	plywood
7	16	barrels
7	1	large piece of white foam
7	1	green channel marker
7	1	yellow poly
7	1	clear poly
· 7	1	large black tarp
7	1	white plastic
7	2	barrel
7	1	white plastic
7	1	scotsman buoy
7	1	blue rope
7	1	plywood
7	1	brown foam
7	1	yellow foam
7	1	<u>-</u>
7	1	brown foam
		clear woven plastic tarp
7	1	blue foam
7	1	foam with metallic backing
7	1	black tarp
7	1	scrap metal

McKinley Bay to Nuvorak Point August 18

Segment Number	Number of Items	Description of Observation
7	1	orange plastic from collar
7	1	black plastic
7	1	old mattress
7	1	brown foam
7	· 1	scotsman buoy
7	1	white plastic container (4 L)
7	1	small plastic container
7	1	clear poly
7	1	wooden cable spool
7	1	plywood
7	1	jerry can
7	1	piece of poly
7	1	broken dredge collar
7	1	orange poly
7	1	green poly
7	1	dredge collar
7	1	white plastic
7	1	plastic
7	1	white bucket
7	. 1	scotsman buoy
7	1	barrel
7	1	orange marker
7	1	life jacket
7	1	dredge collar
7	1	rope
		Nuvorak Point

Sub Total : barrels: 59

other items: 159

Grand Total: barrels: 110

other items: 648

APPENDIX VI

NWT COAST 1990 WHITEFISH STATION TO NUVORAK POINT

Segment Number	Number of Items	Description of Observation
6		Tuktoyaktuk
6	1	red plastic
6	1	red plastic
6	1	white foam
6	1	plastic bag ·
6	1	plastic bottle (1 L)
6.	1	blue bottle
6	1	blue poly
6	1 •	white foam
6	1	gerry can
6	1	clear poly
6	1	white bottle
6	1	plastic bag
6	1	plastic bottle (1 L)
6	1	blue tarp
6 ,	1	plastic bag
6	2	white plastic
6	. 1	blue foam
6	1	plastic bag
6	1	brown foam
6	1	plastic bottle (1 L)
6	1	brown foam (large piece)
6	1	orange plastic container
6	1	white plastic bag
6	1	white container
6	2	plastic bottle (1 L)
6	1	brown foam
6	1	plastic bottle (1 L)
6	1	blue plastic bottle (1 L)
. 6	1	white foam
6	1	plastic bottle (1 L)
6	1	brown foam
6	1	camp / garbage
6	1	brown foam
6	3	plastic bottle (1 L)
. 6	1	marker buoy (red metal)
6	1	brown foam
6	1	white poly
6	1	container
6	1	plastic bottle (1 L)
6	1	red plastic
6	1	plastic bag
6	1	white plastic lid
6	1	red plastic
. 6	. 1	tire
6	1	orange poly
6	1	Penninsula Point
6	1	white tarp
6	1	white plastic
6	1	surveyor's tape
6	1	cup
6	1	plastic bottle (4 L)

Segment Number	Number of Items	Description of Observation
6	1	yellow basin
6	2	white foam
6	1	white poly
6	1	<pre>plastic bottle (1 L)</pre>
6	2	white foam
6	1	white container
6	1	red plastic
6	1	white foam
6	· 1	plastic bottle (1 L)
6	1	white poly
6	1	brown foam
6	1	tabacco tin
6	1	white foam
6	1	scotsman buoy
6	1	plastic container
6 6	1 1	plastic
6	1	plastic bag white foam
6	1	plastic bottle (4L, white)
6	· 1	blue foam
6	1	barrel
6	1	brown foam
6	ī	red plastic
. 6	ī	white foam
. 6	3	white foam
6	2	plastic bottle (1 L)
6	1	plastic bottle (small)
6	1	5 gallon pail
6	1	float (small, yellow)
6	1	white foam
6	1	white container ($4~ m L$)
6	1	blue plastic container
6	1	white foam
6	1	red plastic
6	1	container (small, white)
6	1	blue foam
6	1	blue foam
6	1	white foam
6	1	blue foam
6	2	white foam
6 6	1 2	<pre>plastic bottle (1 L, orange) white foam</pre>
6	1	plastic bottle (white)
6	1	plastic bottle (white) plastic bottle (1 L)
6	1	plastic bottle (1 L)
6	2	white foam
6	1	metal
6	-	Naparolatik Spit
6	1	barrel
6	1	barrel
6	2	plastic bottle (1L)
6	1	pail

Segment Number	Number of Items	Description of Observation
6	1	barrel
6	1	white foam
6	1	marker buoy (red)
6	1	barrel
6	1	net
6	1	plastic bottle (1 L)
6	1	barrel
6	1	plastic bottle (1 L)
6	2	white foam
6	1	pail
6.	1	white foam
6	1	plastic container (white)
6	1	<pre>plastic bottle (1 L) barrel</pre>
6	1 1	barrel
6 6	1	barrel
6	1	barrel
6	1	blue foam
6	1	white container
6	1	brown foam
6	ī	white foam
6	i	plastic dish rack
6	ī	plastic bottle (1 L)
6	ī	blue poly
6	ī	white foam
6	1	white plastic container
6	1	yellow plastic container
6	1	piece of yellow plastic
6	1	plastic bottle (1 L)
6	1	drum buoy
6	1	white poly
6	1	small white container
6	1	barrel
6	1	blue poly
. 6	1	blue poly
6	1	stove fuel tin
6	1 .	plastic bag
6	1	white foam
6	1	red plastic
6	1	white foam
6	1	white foam
6	1	plastic container
6	1	plastic bottle (1 L)
6	2	white foam
6	1	plastic jug (4 L)
6	1 2	blue foam
6		white foam
6	1	orange plastic
6	1	blue foam
6	1	white foam
6	1	<pre>plastic bottle (1 L, blue) green container</pre>
6	1	green concarner

Segment Number	Number of Items	Description of Observation
6	1	white bottle
6	1	barrel
6	1	white plastic
6	1	plastic bag
6	1	yellow poly
6	1	metal can
6	1	yellow container
6	1	plastic bag
6	1	barrel
6	1	white foam
6	ī .	plastic bottle (4L, white)
6	1	white foam
6	1	margarine tub
6	ī	plastic bottle (4L)
6	1	potato chip bag
· 6	1	cup
6	1	plastic bottle (1 L, red)
6	1	white foam
6	ī	apple juice box (1 L)
6	1	gerry can
6	1	barrel
6	1	brown foam
6	ī	black poly
6	ī	white foam
6	ī	plastic bottle (1 L)
6	ī	barrel
6	ī	white poly
. 6	ī	white foam
6	ī	plastic bag
6	1	orange poly
6	ī	metal fuel container
6	_	White Fish Pingo
6	1	white foam
6	ī	marker buoy
6	1	orange poly
6	1	plastic bottle (1 L)
6	2	ornage poly
6	2	barrel
6	1	marker buoy (red)
6	1	brown foam
6	. i .	plastic bag
6	ī	barrel
6	1	plastic bottle (1 L)
6	ī	barrel
6	2	plastic bottle (1 L)
. 6	1	plastic bottle (1 L)
6	ī	white rope
6	ī	metal fuel tin
6	i	rope
6	ī	plastic bottle (1 L)
6	1	blue foam
6	1	plastic bottle (1 L)
• .	-	L

Whitefish Station to Nuvorak Point July 19-21, 1990

Segment Number	Number of Items	Description of Observation
6	2	plastic bottle (1 L)
6	. 1	metal fuel tin
6	1	pop can
6		White Fish Station

Sub Total : barrels - 19

other items - 209

		•
7		Nuvorak Point
7	4	dredge collar piece
7	1	small orange buoy
7	1	barrel
7	1	orange buoy
7	1	dredge collar piece
7	3	barrel
7	i	clear poly sheeting
7	î	orange poly
7	1	scotsman buoy
7	1	large black tarp
7	1	dredge collar piece
7	1	orange foam
7	1	orange rope
7		white foam
	1	
7	1	black tarp
7	1	clear tarp
7	1	white plastic
7	. 1	clear tarp
7	2 2	metal pipe
7		dredge collar piece
7	1	large piece of foam
7	1	barrel
7	1	green poly
7	2	large blue tarp
7	1	dredge collar foam
7 .	1	scotsman buoy
7	1	dredge collar
7	1	dredge collar foam
7	. 1	orange plastic
7	1	large piece collar foam
7	1	scotsman buoy
7	1	white poly
7	1	orange plastic
. 7	1	orange po;ly
7	1	collar foam
7	1	blue tarp
7	1	orange, square metal box
7	1	blue poly
7	1	blue foam
7	1	scotsman buoy

Segment Number	Number of Items	Description of Observation
_		clear poly collar foam clear poly clear tarp small piece hard plastic orange pail clear tarp barrels orange plastic collar foam barrel blue tarp orange poly large blue tarp dredge collar fragments small blue float collar foam orange poly blue tarp clear tarp blue tarp collar foam white plastic white plastic white plastic bottle (1L) pail collar foam hard plastic scotsman buoy clear poly barrel scotsman buoy propane bottles blue tarp clear poly blue foam clear poly (small) orange plastic collar foam barrel scotsman buoy blue tarp (large) clear poly collar foam barrel scotsman buoy
7 7 7 7 7 7 7	1 1 1 2 1 1 2	collar foam buoy orange plastic channel marker scotsman buoy barrel blue poly scotsman buoy

Segment Number	Number of Items	Description of Observation
7	1	large metal tank
7	1	collar foam
7	1	blue tarp
7	· 3	barrel
7	1	dredge collar
7	2	barrel
7	1	scotsman float
7	1	marker buoy (metal)
7	ī	orange poly
7	1	collar foam
7	ī	pail
7	ī	plastic container (green)
'n	1	life boat
	1	channel marker
. 7		barrel
7	3	
7	1	scotsman buoy
7	1	life ring
7	1	large buoy (metal, tires)
7	1	clear tarp
7	1	blue tarp
7	2	orange plastic
7	1	blue tarp
7	1	collar foam
7	2	barrel
7	1	collar foam
7	1	channel marker
7	1	blue tarp
7	1	plastic bottle (1 L)
7	1	orange poly
7	1	blue tarp
7	- 1	plastic bottle (1 L)
7	ī	orange poly
7	1	blue tarp
7	ī	barrel
7	i	orange plastic
7	ī	collar foam
7	2	large metal pontoons
	2	transmitter site
7	4	
7	1	white plastic
7	1	orange buoy (metal , tires)
7	1	barrel
7	1	collar foam
7	1	blue tarp
7	1	buoy (small, round)
7	. 1	clear poly
7	1	clear poly tarp (large)
7	1	channel marker (orange)
. 7	1	<pre>marker buoy (metal)</pre>
. 7	1	collar foam
7	1	<pre>clear tarp (extremely large)</pre>
7	ī	orange rope
7	2	barrel

-	Number of Items	Description of Observation
7	20	barrels (cache on land)
7	1	blue poly
7	2	clear tarp
7	1	clear poly
7	1	orange marker (metal)
7	. 1	clear poly
7	1	barrel
7	1	clear poly
7	1	collar foam
7	1	black tarp (large)
7	3	barrels
7	1	orange tarp
7	1	buoy (metal drum)
7	1	clear tarp (long)
7	?	buoys (orange)
7	1	scotsman buoy
7	1	clear tarp (very large)
7	1	clear tarp
7	1	red pail
7	1	Atkinson Point
7	1	collar foam
7	3	barrels
7	3	Bombardier track (pieces)
7	2	collar faom
7	1	barrel
7	1	orange plastic
7	1.	collar foam (large piece)
7	2	collar foam
7 · 7	4	barrels
7	1	scotsman buoy
7	6 1	dredge collar pieces dredge collar (1/2)
7	1	dredge collar piece
7	2	dredge collar pieces
· 7	1	barrel
7	2	scotsman buoy
7	1	blue filler cloth tarp (large)
• 7	ī	collar foam
7	ī	dredge collar
7	ī	collar faom
7	2	orange plastic
7	1	red pail
7	1	barrel
7	1	orange plastic
7	1	collar foam
7	1	red gerry can
7	1	barrel
7	1	pieces of collar foam
7	1	collar foam
7	3 2	dredge collar
7	2	barrels
7	1	collar foam

Nuvorak Point to Tuktoyaktuk July 19, 1990

Segment Number	Number of Items	Description of Observation
7	1	rope (thin, green)
7	1	rope (thick, orange)
7	1	orange plastic
7	1	dredge collar
7	1	blue tarp (large)
7	4	pieces of dredge collar
7	1	buoy (large, orange)
7	1	dredge collar
7	1	barrel
7	3	collar foam
7	1	barrel
7	3	collar foam
7	1	dredge collar
7	1	marker buoy (metal, post)
7	1	collar foam
7	2	dredge collar
7	1	barrel
7	2	collar foam
7	1	barrel
7	1	collar foam
7	1	dredge collar
7	1	collar foam
7	1	blue poly
7	. 1	scotsman buoy
7	1	buoy (barrel)
7	1	orange poly
7	1	collar foam
7	1	clear poly
7	1	orange foam
7	1	blue foam (large slab)
7	1	bottle (blue, 4L)
7	1.	clear poly
7	_	Warren Point
7	1	buoy (barrel)
7	2	barrel
7	1	clear poly tarp
7	1	buoy (drum)
7	1	collar foam
7	1	barrel
7	1	plastic bottle (blue)
7	1	dredge collar
7	1	plastic container (white)
7	1	barrel
7	_	old transmission site
7	1	dredge collar
7	1	channel marker (red)
7	1	dredge collar
7	1 .	plastic bag
7	1	collar foam
7	1	plastic pail (white)
7	1	white poly
7	1	marker buoy (metal , red)

Whitefish Station to Nuvorak Point July 19-21, 1990

Segment Number	Number of Items	Description of Observation
7	1	dredge collar
7	2	collar foam
7 .	2	barrel
7	1	orange plastic
7	1	<pre>pail (portion)</pre>
7	1	collar foam
7	1	barrel
7	4	dredge collar
7	2	barrel
7	2	orange plastic
7		Tuktoyaktuk
Sub total	barrel	s: 95

other items: 271

Grand Total

barrels: 114

other items: 480