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**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 5684**

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from seabed video collected on board CCGS Nahidik, 1-12
August 2006**

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INTRODUCTION

The Coastguard vessel CCGS Nahidik was used in summer 2006 as a research platform to collect seabed sediment and fauna samples, video footage and to conduct offshore surveys of the Beaufort Sea. This Beaufort Seabed Mapping Project was designed to assess the environmental impact of offshore hydrocarbon exploration and transportation on the renewable resources of the Beaufort Sea. Knowledge of the location and sensitivity of unique seabed habitats related to sustaining the renewable resources of the Beaufort Sea is required to provide a basis for assessing the impact of proposed offshore pipeline routes and exploration drill sites on the Beaufort ecosystem. This report is on benthic habitats and epifauna identified and quantified from video stations in the Beaufort Sea, taken aboard CCGS Nahidik, 1 - 12 August 2006.

SHIPBOARD OPERATIONS

Diversity and abundance of benthic megafauna was assessed along a number of transects in water depths from 27 to 213 m in the vicinity of Mackenzie Trough. Underwater video recordings were taken opportunistically as often as possible. The total of 36 video stations was occupied, accounting for 13 hours of collected video. An epibenthic sled was used once to sample macrofauna for obtaining voucher specimen for species identification.

Equipment used: A camera tripod designed and built by Freshwater institute; SeaView SV-DSP2002 high resolution digital signal processor underwater color video camera (811x508 picture elements, horizontal resolution 450 TV lines, min. illumination 2 Lux, maximum operational depth 1000 feet) with light; Shark Marine video control console, containing power block, Sea-Track unit for displaying auxiliary information on video screen, and AC/DC Sansui TV/VCR; Sony GV-D1000 Mini Digital Video recorder; LG DVD-HD recorder, Garmin GPS; laptop computer; PCMCIA-Com port splitter.

Shark Marine made a number of upgrades to the system, such as addition of depth transponder, two laser lights, an additional lamp. Addition of lasers and an extra light required an octopus wiring attached to the video cable (Fig. 1).

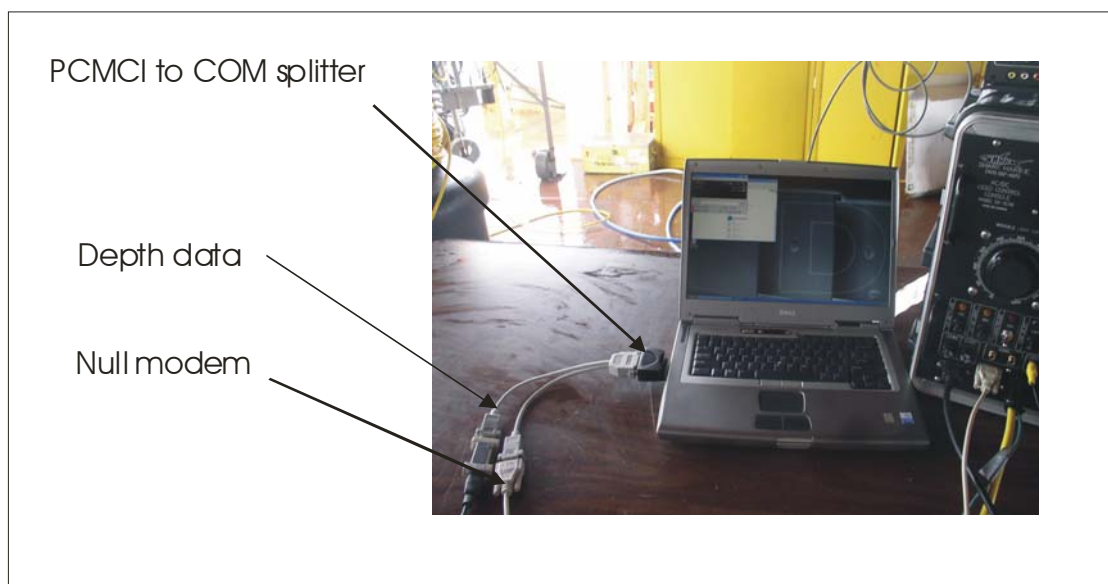
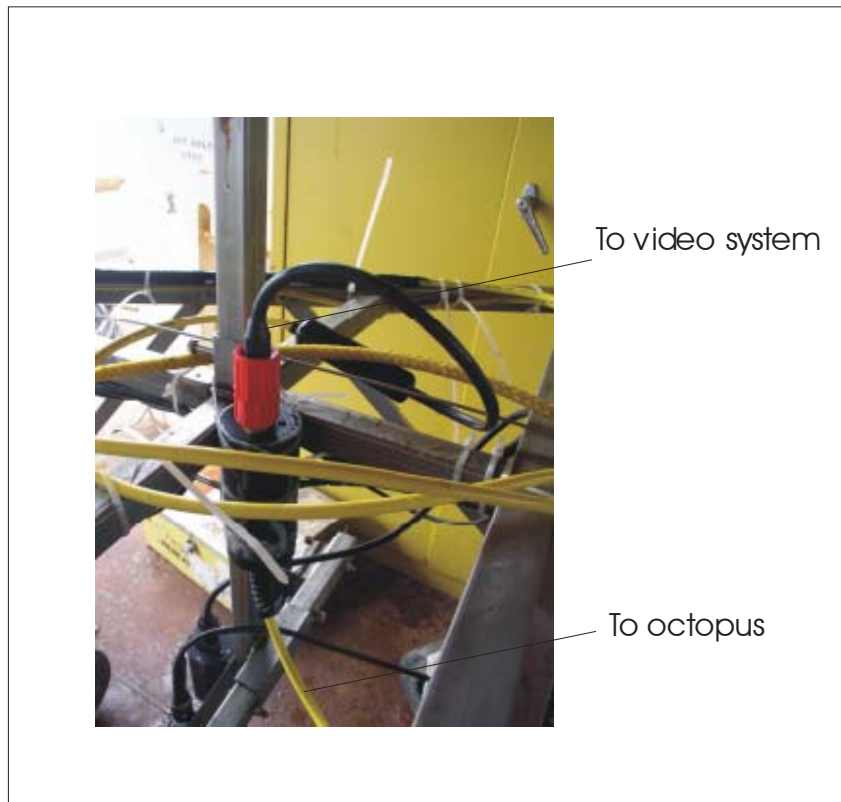


Figure 1. Additions to Shark Marine video system. Details provided in the text.

Camera was set at 50 cm above the bottom of tripod, which resulted in approximately 70 cm wide view field when camera legs were on seabed. GPS signal from Garmin was split to video control console and laptop computer. The external TV monitor was connected to DV recorder, duplicating the camera view and facing the winch man. This allowed adjusting camera altitude above the seabed faster, resulting in better quality and consistent scale of the obtained images. After the first tests of the system 40 lb lead weights were added to each of the tripod legs to make the system more stable on the bottom.

Operation: The camera control console and other equipment were set up on the aft deck, starboard side. In the beginning of each station, a station label was recorded on video for a few seconds. All video stations were numbered according to the ship's log. Station coordinates, date and time, and vessel speed and bearing were recorded automatically on video when the system performed as planned. Video recording was initialized when the camera was on the bottom. The length of recording was an average of 20 minutes when efficient winch operation technique was established and camera could be held at a stable altitude above the bottom. Recording was stopped before the camera was winched up. Three events were logged on the bridge: Camera in the water, camera on the bottom and camera off the bottom. Start and end positions for establishing transect lengths, and ship tracks were obtained from the bridge.

PERFORMANCE OF SHARK MARINE VIDEO SYSTEM:

1. Video input and output on inside front panel of the deck control unit were reversed, internal inputs/outputs unmarked or marked wrong.
2. Video input and output on outside front panel reversed, internal inputs/outputs unmarked or marked wrong
3. Components in rear of deck unit were not secured against movement/shaking
4. Cable schematic for the system was wrong.
5. Ground short somewhere in system. We lost video when the laptop was plugged into AC power, and connected to the system. The grounding problem of the Video

system led to a number of ship alarms related to “ground on board ship”. The alarms went off when the Dell laptop was connected to AC power. This immediately led to video signal loss. No interruption in video signal occurred in the fully assembled system with the laptop running off internal battery.

6. Shark Marine data logging software could not read NMEA data stream from the bridge. We were trying to input a GPS feed from the ship’s positioning system but were unable to get the system to accept the signal.
7. The new video overlay system did not work – only several inputs were possible to display, saving and opening of the logs for new stations was confusing.
8. Lasers cases were flooding despite silicon proofing of O-rings in the front lens. One of the lasers had burnt and had to be disassembled, internal electronics was repaired on board.
9. Limited mounting hardware was supplied for lasers. A custom mounting plate was made on board ship.
10. Stress relief loop for the cable, where it is attached to the tripod, needs to be improved.
11. The operator was electrocuted multiple times from touching the ‘Camera ON’ switch, or the aluminum frame on the video system. The system has to be wet proofed.
12. Setup of PCMCIA to COM port splitter on the laptop was not straightforward. The ports became available after several attempts and fine-tuning of hardware settings. For example, COM1 of the laptop was occupied by Microsoft Active Sync, which had to be shut down manually.

The following suggestions were made for improving the system quality and operation:

1. A dry video room/enclosure is required to ensure safety of operating personnel and security of video recording equipment.
2. Considerable improvements of the video system must be made during the winter 2006-2007
3. A separate camera winch has to be installed on board during the early 2007 retrofit.

DATA RECORDED ON BOARD SHIP

In addition to the station number, the following data is recorded for each station (Appendix 1): a description of the station location; water depth obtained from the bridge or from winch counter; station coordinates and time tags for the beginning and the end of each station; the number for the video tape on which the recording was made; and total recording time from the beginning until the end of the station. Time tags on the tapes (UTC) are ahead of the local time by 6 hours. UTC date and time are also shown in this report.

Comments to the station are the summary from quick field notes and video analysis which refer to problems in sampling, uncertainties in identification and general results of analysis of benthic habitat and epifauna. Two screen grabs from video footage taken at each station are included as well. These often represent features of geological or biological interest, or are images with best quality obtainable at the station and are not necessarily representative for the whole of the surveyed track.

To facilitate finding locations of stations in the study area, a general map of the Beaufort Sea, with the station locations is shown on Figure 2.

IDENTIFICATION AND ANALYSIS OF EPIBENTHOS

1. Total abundances

Fauna was identified from the video image to lowest possible taxonomic level and logged using an NRCAN-developed computer program into 'txt.-files'. Unless fauna was extremely abundant, all individuals of epibenthic macrofauna were recorded for each transect. In several cases (most often for brittle stars – *Ophiura* sp.), abundances were so high that replicate subsamples - still frame counts (approximately once/minute of visible video) - were used to record the abundance of the species per frame. Calculations were then made for the area of the subsamples and an average of the number of specimen per meter squared was calculated. See Table 1 for species abundances.

2. Transect Length and Area

The total transect length (in meters) was adjusted by the proportional time during which the visibility was sufficient to identify fauna on the video. For example, if only 50% of the recording time had sufficient visibility, then the total transect length was subsequently reduced by half. If for any video frame less than 50% of the seabed area was visible on screen that was counted as "not visible". From visible lengths, visible area was then calculated for each transect.

3. Standardization of abundances

Abundances of epifauna were standardized to represent individual/m², to be comparable to the Brittle star abundances (in ind/m²) already calculated, using the calculated visible area of each transect.

4. Identification

A collection of still images from the videos (sorted by station) can be used as a reference base for identification. These were identified based on reference material and also to coordinate with identifications made in the previous year's reports. See Table 2 for the list of species and Appendix 2 for still images (screen grabs from video).

5. Station descriptions

Each station is charted with information such as time of recording, latitude/longitude, species richness, date, and the species recorded, along with a description of the transect in general. See Table 3 and Appendix 1 for station details.

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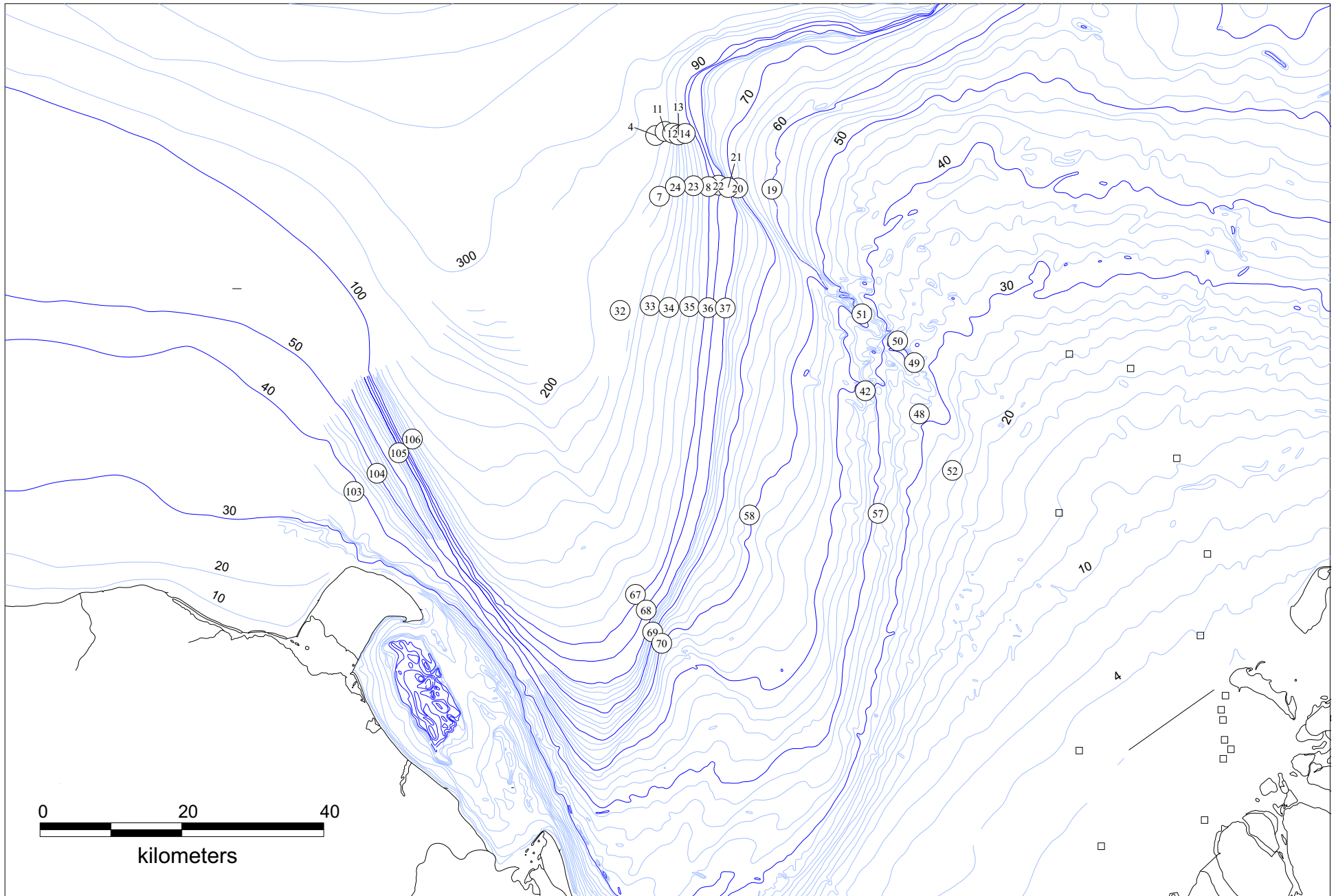


Figure 2. Start locations for video stations taken aboard CCGS Nahidik, 1 - 12 August 2006 in the Beaufort Sea.

Table 1. Standardized abundances (individuals per square meter) of seabed fauna for stations where total transect length was measured.

Taxon:	Station	4	7	8	11	12	13	14	19	20
Annelida	Unid. Polychaete	0.002		0.004		0.017	0.030	0.025	0.016	0.010
Arthropoda: Decapoda	Unid. Shrimp	0.005	0.006				0.010			
Arthropoda: Peracarida	Unid. Benthic Amphipods	0.002	0.003	0.001		0.034	0.040	0.013	0.005	0.093
Arthropoda: Isopoda	Saduria entomon									
	Saduria sabini								0.005	
Arthropoda: Pycnogonida		0.014	0.006	0.005	0.040	0.169	0.100	0.064	0.027	0.016
Coelenterata: Anthozoa	Alcyonium sp.	0.567	0.944	0.322	0.995	1.710	0.902	0.510	0.479	0.626
	Gersemia rubiformis	0.164		0.321	0.159	0.288	0.321	0.045	0.630	1.237
	Unid. Coral									
	Bolocera tuediae	0.019		0.001	0.048	0.051	0.020	0.019		0.005
	Hormathia sp.	0.005	0.015	0.001	0.024	0.034			0.452	
	Halcampa sp.				0.008					
	Metridium sp.									
	Pachycerianthus fimbriatus		0.030	0.002	0.111	0.068	0.010		0.022	
	Unid. Anemone	0.016		0.005		0.051	0.030	0.019	0.016	0.036
	Urticina sp.			0.001		0.017				
	Unid. Sea Pen									
Chordata: Vertebrata	Unid. Fish	0.005	0.018	0.005	0.016	0.017	0.020	0.019	0.022	0.010
Echinodermata: Asteroidea	Asterias sp. (small white species)									
	Crossaster papposus									
	Hippasterias sp.	0.014	0.003	0.002	0.016	0.017			0.005	0.016
	Icasterias panopla			0.007			0.010	0.006		
	Leptasterias groenlandica			0.022		0.085			0.054	0.078
	Leptychaster arcticus									
	Urasterias lincki								0.011	0.005
	Pteraster militaris							0.006		
	Unid. Asteroidea	0.002	0.003	0.001		0.034	0.010	0.006	0.016	0.026
	Unid. Asteroidea 1			0.005		0.017				
	Poraniomorpha sp.									
	Solaster									
Echinodermata: Crinoidea	Antedon bifida	0.075	0.003	0.170	0.016	0.102	0.130	0.217		0.026
	Heliometra glacialis	0.143	0.009	0.339	0.215	0.271	0.271	0.510	0.016	0.166
Echinodermata: Echinoidea	Strongylocentrotus droebachiensis							0.006		0.005
Echinodermata: Holothuroidea	Leptosynapta inhaerens									
	Unid. Holothuroidea 1 (drk pink)									
	Unid. Holothuroidea				0.008					0.005

Table 1. Standardized abundances (individuals per square meter) of seabed fauna for stations where total transect length was measured.

Station	21	22	23	24	32	33	34	35	36	37	42	48	49
Unid. Polychaete	0.016		0.020		0.010	0.022	0.011	0.004	0.002				
Unid. Shrimp	0.016										0.005		
Unid. Benthic Amphipods	0.096	0.056	0.014	0.016		0.016		0.004	0.022				
Saduria entomon											0.045		0.061
Saduria sabinii	0.008									0.002	0.125	0.054	0.097
	0.024	0.028	0.014	0.011	0.010	0.007	0.009	0.018	0.007	0.009			
Alcyonium sp.	0.184	0.562	0.810	0.901	0.426	0.161	0.140	0.469	0.222	0.119	0.040	0.038	0.020
Gersemia rubiformis	0.527	1.800	1.108	0.648	1.283	0.241	0.190	0.483	0.735	0.442			
Unid. Coral						0.002					0.010		
Bolocera tuediae	0.008	0.014	0.047	0.011	0.005			0.002	0.004	0.007			
Hormathia sp.				0.022	0.015	0.002		0.004	0.026	0.106			
Halcampa sp.													
Metridium sp.													
Pachycerianthus fimbriatus	0.016	0.056	0.047	0.060	0.069	0.031	0.045	0.025	0.002	0.011	0.010		
Unid. Anemone		0.042		0.016	0.015	0.011	0.002	0.009	0.022	0.062	0.025		0.004
Urticina sp.		0.028				0.004	0.002	0.013	0.009				0.004
Unid. Sea Pen													
Unid. Fish	0.016	0.014	0.020	0.022		0.025	0.014		0.013	0.009	0.010		
Asterias sp. (small white species)													
Crossaster papposus													
Hippasterias sp.				0.005	0.005		0.005	0.004	0.009	0.013			
Icasterias panopla			0.014		0.003	0.007	0.002						
Leptasterias groenlandica	0.088	0.042					0.004	0.002	0.031	0.057		0.023	0.036
Leptychaster arcticus													
Urasterias lincki	0.008												
Pteraster militaris													
Unid Asteroidea	0.040		0.007	0.016			0.005	0.004	0.004	0.004	0.010	0.008	0.012
Unid Asteroidea 1	0.008		0.007	0.005	0.003		0.005	0.002	0.002		0.005		
Poraniomorpha sp.													
Solaster													
Antedon bifida	0.128	0.323	0.689	0.005		0.002		0.023	0.024	0.002			
Heliometra glacialis	0.088	0.351	0.804	0.066	0.046	0.011	0.029	0.107	0.134	0.015			
Strongylocentrotus droebachiensis							0.002						
Leptosynapta inhaerens	0.008	0.014							0.002				
Unid Holothuroidea 1 (drk pink)													
Unid Holothuroidea				0.005	0.003				0.002				

Table 2. List of identified taxa and terminology/descriptors used in recording seabed fauna.

Annelida /Unid. Worms

Unid. Polychaete

Unid. Worm/worm-like species

Unid. Worm – orange

Porifera

Unid. Sponge

Unid. Sponge 1 – round, bumpy

Unid. Sponge 2 – yellow, multiple holes

Unid. Sponge 3 – cup sponge

Unid. Sponge 4 – upright tube like shape

Arthropoda: Decapoda

Unid. Shrimp

Arthropoda: Isopoda

Saduria entomon

Saduria sabini

Arthropoda: Pycnogonida

Nymphon sp.

Priapulida and Spunculid

Unid. worm

Vertebrata

Unid. Fish

Coelenterata: Anthozoa

Alcyonium sp. – soft corals

Gersemia rubiformis – small pink coral

Bolocera tuediae

Halcampa sp.

Hormathia sp.

Metridium sp.

Pachycerianthus fimbriatus

Urticina sp.

Unid. Anemone

Unid. Sea Pen

Echinodermata: Asteroidea

Crossaster papposus

Poraniomorpha sp.

Icasterias panopla

Leptasteris groenlandica

Pteraster militaris

Solaster sp.

Urasterias lincki

Asterias sp.

Hippasterias sp.

Unid. Asteroidea 1

Unid. Asteroidea

Echinodermata: Crinoidea

Heliometra glacilis

Antedon bifida

Echinodermata: Echinoidea

Strongylocentrotus droebachiensis

Echinodermata: Ophiuroidea

Ophiacantha bidentata – large brittlestars

Ophiura sp.- small brittlestars

Gorgonocephalus arcticus

Echinodermata: Holothuroidea

Leptosynapta inhaerens

Unid. Holothuroidea 1 (pink species - ?*Cucumaria sp.*)

Unid. Holothuroidea

Mollusca: Gastropoda

Cryptonatica affinis (Moon snail)

Unid. Whelk

Unid. Gastropod

Mollusca: Bivalvia

Unid. Bivalve

Delectopecten vitreus – clear small bivalve

Nemertea


Unid. Nermertean


Unid. Nermertean 1 (long red worm)

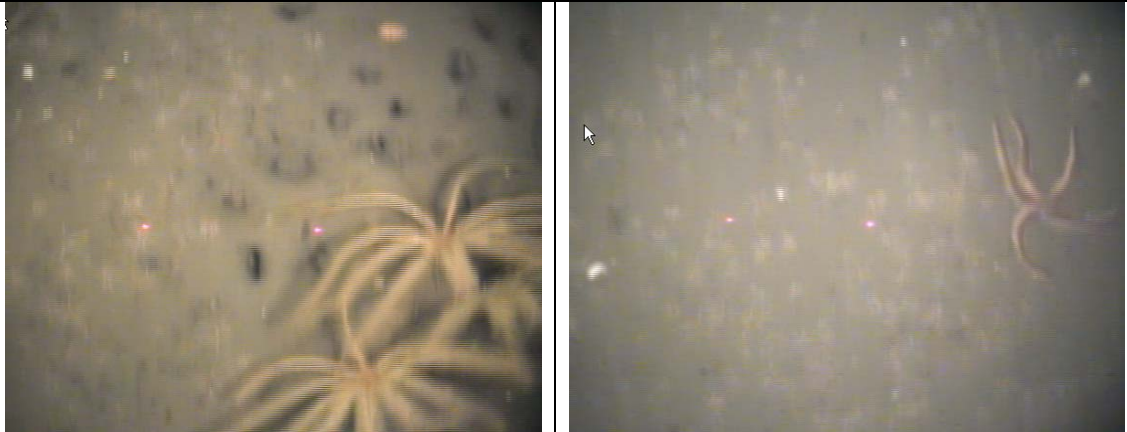
Table 3. Locations of start positions of video station, along with the summary of transect length, the time seabed is visible, and the total visible area surveyed.



Station Number	Date (d/m/yr)	Depth (m)	Start Longitude	Start Latitude	Transect length (m)	Transect width (m)	Total recording time (s)	Actual visible time (s)	Visible length (m)	Visible area (m ²)
4	2/8/2006	213	-137.9763	70.1984	530	1.02	1007	795	418.4	426.8
7	2/8/2006	182	-137.9622	70.1197	490	0.775	1057	926	429.3	332.7
8	2/8/2006	100.8	-137.7781	70.1322	1128	0.769	2170	2080	1081.2	831.5
11	3/8/2006	196.4	-137.9412	70.2036	200	0.707	1053	936	177.8	125.7
12	3/8/2006	174.1	-137.9132	70.2013	180	0.629	1785	931	93.9	59.1
13	3/8/2006	147.2	-137.8910	70.1991	144	0.78	1075	955	127.9	99.8
14	3/8/2006	120.5	-137.8657	70.2010	270	0.688	1511	1277	228.2	157.0
19	4/8/2006	62.9	-137.5407	70.1288	307	0.638	1155	1095	291.1	185.7
20	4/8/2006	72.5	-137.6683	70.1304	337	0.587	1273	1243	329.1	193.2
21	4/8/2006	81.5	-137.7043	70.1310	194	0.651	1288	1278	192.5	125.3
22	8/4/2006	89.1	-137.7407	70.1340	126	0.587	1567	1507	121.2	71.1
23	4/8/2006	123.5	-137.8343	70.1333	377	0.661	2080	1236	224.0	148.1
24	8/4/2006	166.1	-137.9022	70.1321	293	0.626	1384	1374	290.9	182.1
32	5/8/2006	193.6	-138.1094	69.9718	606	0.676	1230	1170	576.4	389.7
33	5/8/2006	170	-137.9965	69.9781	624	0.718	1261	1261	624.0	448.0
34	5/8/2006	162	-137.9274	69.9758	804	0.71	1210	1185	787.4	559.0
35	5/8/2006	125	-137.8494	69.9768	792	0.722	1204	1177	774.2	559.0
36	5/8/2006	120	-137.7801	69.9754	763	0.623	1206	1156	731.4	455.6
37	5/8/2006	96	-137.7154	69.9750	738	0.676	1211	1104	672.8	454.8
42	5/8/2006	50	-137.1907	69.8678	426	0.737	1202	764	270.8	199.6
48	6/8/2006	34.8	-136.9882	69.8379	512	0.522	867	423	249.8	130.4
49	6/8/2006	33	-137.0072	69.9043	526	0.693	909	618	357.6	247.8
50	6/8/2006	49	-137.0694	69.9324	957	0.655	1358	608	428.5	280.6
51	6/8/2006	57	-137.2037	69.9674	764	0.698	1208	927	586.3	409.2
52	6/8/2006	27.9	-136.8641	69.7647	298	0.553	1203	685	169.7	93.8
57	7/8/2006	42	-137.1432	69.7092	566	0.605	1211	997	466.0	281.9
58	7/8/2006	61.6	-137.6245	69.7070	246	0.621	1230	1170	234.0	145.3
67	10/8/2006	103	-138.0517	69.6042	511	0.705	1209	683	288.7	203.5
68	10/8/2006	121	-138.0117	69.5840	738	0.717	1203	1123	688.9	494.0
69	10/8/2006	78	-137.9875	69.5555	1078	0.727	1679	675	433.4	315.1
70	10/8/2006	60	-137.9536	69.5408	750	0.669	1216	1112	685.9	458.8
103	12/8/2006	37	-139.1071	69.7376	403	0.756	1505	1060	283.8	214.6
104	12/8/2006	53	-139.0206	69.7611	649	0.63	1287	1048	528.5	332.9
105	12/8/2006	76	-138.9391	69.7875	459	0.625	1222	831	312.1	195.1
106	12/8/2006	163	-138.8878	69.8054	675	0.651	1286	1219	639.8	416.5


APPENDIX 1. Detailed descriptions of video transects by Station


Station	4		
Description	Garry 11		
Depth	206.3 – 213m		
Transect length (m)	530		
Date	2/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°11.9010 N	137°58.5800 W	2:33:24
End (off bottom)	70° 11.8563	137° 57.7284	2:55:40
Species Richness:	19		
Recording time (s):	1007		
Visibility time (s):	788		
Comment:	<p>Depth at start 210.2 m; Feed cuts out near beginning of tape; visibility on and off seafloor (moving near/far) – poor visibility; timer cuts out mid tape; hitting bottom causing mud clouds. Muddy substrate; masses of tube structures. <i>Alcyonium sp.</i> common; Brittle stars common.</p> <p>Fauna logged (Stn4.xls; log4.txt, log4vis.txt)</p> <p>Species recorded: Polychaete, Shrimp, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis.</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, Unid. Fish, <i>Hippasterias sp.</i>, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Nermertean</p>		
			


Station	7		
Description	Garry 10		
Depth	182 m		
Transect length (m)	490		
Date	2/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°07.1821	137°57.7292	20:52:46
End (off bottom)	70°06.9424	137°57.3719	21:10:31
Species Richness:	21		
Recording time (s):	1057		
Visibility time (s):	926		
Comment:	<p>Timer not on; No movement for first 30 sec; poor visibility at start; pauses in video feed; mud surface, smooth with many large and small burrow holes; plumes at surface difficult to see due to shadowing; very large hole at 11:03 min; Unid. orange star at 11:53; Questionable spider-like species. <i>Alcyonium sp.</i> common.</p> <p>Fauna logged (Stn7.xls; log7.txt, log7vis.txt, log7a.txt, log7b.txt)</p> <p>Species recorded: Shrimp, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Fish, <i>Hippasterias sp.</i>, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, Unid. Asteroidea, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Unid. worm, Unid. Nermertean</p>		
			



Station	8		
Description			
Depth	99.5-100.8m		
Transect length (m)	1128		
Date	2/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°07.9337	137°46.6849	22:16:45
End (off bottom)	70°07.2088	137°46.7187	22:52:55
Species Richness:	28		
Recording time (s):	2170		
Visibility time (s):	2080		
Comment:	<p>No times recorded on video; blurry, moving fast over surface; Brittle stars unclear at start (more clear after 6min); large and small holes, shell debris, smooth mud surface; small pink species, counted as <i>Gersemia rubiformis</i>, common throughout; corals, crinoids common.</p> <p>Fauna logged (Stn8.xls; log8.txt, log8a.txt)</p> <p>Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, <i>Urticina sp.</i>, Unid. Fish, <i>Hippasterias sp.</i>, <i>Icasterias panopla</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk, Gastropod, Unid. Nermertean, Unid. worms.</p>		
			


Station	11		
Description			
Depth	196.4		
Transect length (m)	200		
Date	3/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°12.2180 N	137°56.4700 W	3:17:41
End (off bottom)	70°12.3126	137°56.352774	3:34:33
Species Richness:	19		
Recording time (s):	1053		
Visibility time (s):	936		
Comment:	<p>Slow moving; mud surface; many tubal masses, large and small burrow holes. Fauna logged (Stn11.xls; log11.txt, 11a.txt) Species recorded: Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Fish, <i>Hippasterias sp.</i>, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk, Unid. Gastropod, Unid. Bivalve, Unid. worms, Unid. Holothuroidea</p>		
			


Station	12		
Description			
Depth	174.1m		
Transect length (m)	180		
Date	3/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°12.0790 N	137°54.7900 W	4:13:00
End (off bottom)	70°12.1477	137°54.6572	4:30:36
Species Richness:	27		
Recording time (s):	1785		
Visibility time (s):	931		
Comment:	<p>Mud, smooth; many holes; tube masses and mounds of unknown composition; mud tubes (worms); length recorded longer than actual time of useable video (accounted for in visibility times); Unid. bryozoan species; <i>Alcyonium sp.</i>, brittle stars common. Fauna logged (Stn12.xls; log12.txt, log12a.txt)</p> <p>Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, Unid. Coral, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina sp.</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk, Unid. Gastropod, Unid. worm, Unid. Sponge, Unid. Bryozoan</p>		
			



Station	13		
Description			
Depth	147.2m		
Transect length (m)	144		
Date	3/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°11.9440 N	137°53.4600 W	4:53:17
End (off bottom)	70°12.0022	137°53.4006	5:11:04
Species Richness:	23		
Recording time (s):	1075		
Visibility time (s):	955		
Comment:	<p>Mud, smooth; multiple swimming species (Amphipods, copepods?); jelly near start; Brittle stars common. Fauna logged (Stn13.xls; log13.txt, log13a.txt) Species recorded: Polychaete, Amphipod, Shrimp, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Icasterias panopla</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk, Unid. Gastropod, Unid. worm, Unid. Sponge, Unid. Cnidaria (floating).</p>		
			



Station	14		
Description			
Depth	120.5m		
Transect length (m)	270		
Date	3/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°12.0620 N	137°51.9400 W	05:48:10
End (off bottom)	70°12.1119	137°51.5316	06:13:05
Species Richness:	23		
Recording time (s):	1511		
Visibility time (s):	1277		
Comment:	<p>Mud, smooth; large and small infaunal burrows; some pebbles; shell debris; Brittle stars common. Small cut out near start . Fauna logged (Stn14.xls; log14.txt, log14v.txt) Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, Unid. Anenome, Unid. Fish, <i>Icasterias panopla</i>, <i>Pteraster militaris</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Strongylocentrotus droebachiensis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Unid. Bivalve, Unid. Sponge</p>		
			


Station	19		
Description			
Depth	62.6-62.9m		
Transect length (m)	307		
Date	4/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°07.7270 N	137°32.4400 W	02:43:00
End (off bottom)	70°07.5434	137°32.2114	03:02:15
Species Richness:	24		
Recording time (s):	1155		
Visibility time (s):	1277		
Comment:	<p>Mud, smooth; many burrows – mostly small to medium sized; fast moving at start; upright tubes and siphons (double tube like objects) common; small pink species, counted as <i>Gersemia rubiformis</i>; A lot of burrows or mud concretions on the surface; Anemones and brittle stars moderately abundant. Tall stalks of sabellid tubes. Asteroidea – Possible <i>Asterias</i> (labeled <i>Leptasterias groenlandica</i>), few corals. Brittle stars actively move, very few crinoids, fish.</p> <p>Fauna logged (Stn19.xls; log19a.txt, log19b.txt)</p> <p>Species recorded:</p> <p><i>Leptasterias groenlandica</i> (probably actually <i>Asterias</i> sp.), Polychaete, Amphipod, <i>Saduria sabini</i>, Pycnogonida, <i>Alcyonium</i> sp., <i>Gersemia rubiformis</i>, <i>Hormathia</i> sp., <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias</i> sp., <i>Urasterias lincki</i>, Unid. Asteroidea, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Gastropod, Unid. worm, Unid. Sponge, Unid. Bryozoan, stalked unid. species.</p>		
			

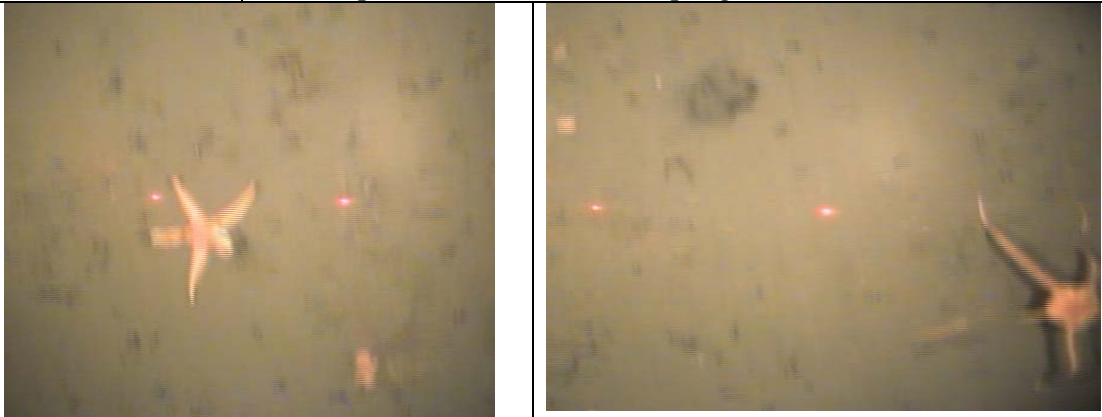
Station	20		
Description			
Depth	72.5m		
Transect length (m)	337		
Date	4/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°07.8240 N	137°40.1000 W	3:37:21
End (off bottom)	70°07.6142	137°39.8052	3:58:00
Species Richness:	30		
Recording time (s):	1273		
Visibility time (s):	1243		
Comment:	<p>Mud, smooth; many brittle stars, corals, burrows, clear shells (<i>Delectopecten vitreus</i>); possible eggs; stalked bulb sp.; bivalve jumping; small pink species, counted as <i>Gersemia rubiformis</i>; Good drift; crinoids, what seemed like a stalked jellyfish (Stauromedusae). Scallops, mud stars; orange worm or worm-like species (cucumber?)</p> <p>Fauna logged (Stn20.xls; log20.txt, log20a.txt)</p> <p>Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Strongylocentrotus droebachiensis</i>, <i>Gorgonocephalus arcticus</i>, Unid. Holothuroidea, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, <i>Delectopecten vitreus</i>, Unid. Sponge</p>		
			


Station	21		
Description			
Depth	81.5m		
Transect length (m)	194		
Date	4/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°07.8600 N	137°42.2600 W	4:18:46
End (off bottom)	70°07.7666	137°41.9776	4:39:00
Species Richness:	27		
Recording time (s):	1288		
Visibility time (s):	1278		
Comment:	<p>Good visibility; Mud; small mud lumps; uneven surface; bivalves moving; many brittle stars; stalked bulbs common; tubes common and plumes; small pink species, counted as <i>Gersemia rubiformis</i>. Fauna logged (Stn21.xls; log21.txt, log21a.txt)</p> <p>Species recorded: Polychaete, Shrimp, Amphipod, <i>Saduria sabini</i>, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Fish, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Leptosynapta inhaerens</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Unid. Bivalve, Unid. Nermertean, Unid. worm</p>		
			


Station	22		
Description			
Depth	87.7 - 89.1 m		
Transect length (m)	126		
Date	4/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°08.0390 N	137°44.4400 W	4:56:02
End (off bottom)	70°07.9715	137°44.2656	5:22:09
Species Richness:	22		
Recording time (s):	1567		
Visibility time (s):	1507		
Comment:	<p>Time doesn't change from 05:10:06 throughout; Mud; mounds; burrows common; siphons common; many brittle stars; clear shells (<i>Delectopecten vitreus</i>) throughout; mounds of mud near small holes; small pink species, counted as <i>Gersemia rubiformis</i>; stalked species may be tunicates (Boltenia-like); plumes on seafloor; sea cucumber; unknown white mass (possibly eggs); Unid. Asteroidea; possible hydroid.</p> <p>Good drift. Brittlestars, conspicuous burrows. A conspicuous horseshoe-shaped burrow with balanus-like cirri scooping water. Fauna logged (Stn22.xls; log22.txt, log22a.txt)</p> <p>Species recorded: Amphipod, <i>Alcyonium</i> sp., <i>Gersemia rubiformis</i>, Pycnogonida, <i>Bolocera tuediae</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina</i> sp., Unid. Anenome, Unid. Fish, <i>Leptasterias groenlandica</i>, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Leptosynapta inhaerens</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Unid. worm</p>		
			


Station	23		
Description			
Depth	119.5 – 123.5m		
Transect length (m)	377		
Date	4/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°07.9980 N	137°50.0600 W	5:56:39
End (off bottom)	70°08.1066	137°49.5824	6:21:45
Species Richness:	23		
Recording time (s):	2080		
Visibility time (s):	1236		
Comment:	<p>Mud, small clumps near holes, bivalves jumping, stalked bulbs common; worms – red, long; dark branching species; large and small brittlestars; sunken log with crinoids on it; tubes; small pink species, counted as <i>Gersemia rubiformis</i>; Sunken logs. Fauna logged (Stn23.xls; log23.txt, log23a.txt) Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Fish, <i>Icasterias panopla</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, <i>Ophiacantha bidentata</i>, Unid. Whelk sp., Unid. Gastropod, Unid. Bivalve, Unid. Nermertean, Unid. worm</p>		
			


Station	24		
Description			
Depth	162.4 – 166.1 m		
Transect length (m)	293		
Date	4/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	70°07.9250 N	137°54.1300 W	7:11:39
End (off bottom)	70°07.8955	137°53.7283	7:34:59
Species Richness:	23		
Recording time (s):	1384		
Visibility time (s):	1374		
Comment:	<p>No time recorded on video until 4 minutes into video; Mud; mud lumps at holes; stalked bulbs; tubes; plumes common; small pink species, counted as <i>Gersemia rubiformis</i>; retracting worm or siphon seen (3:14); many odd species; Corals, Brittle stars common.</p> <p>Fauna logged (Stn24.xls; log24.txt, log24b.txt, log24p.txt)</p> <p>Species recorded: Amphipod, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias sp.</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, Unid. Holothuroidea, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Unid. Bivalve, Unid. Nermertean</p>		
			

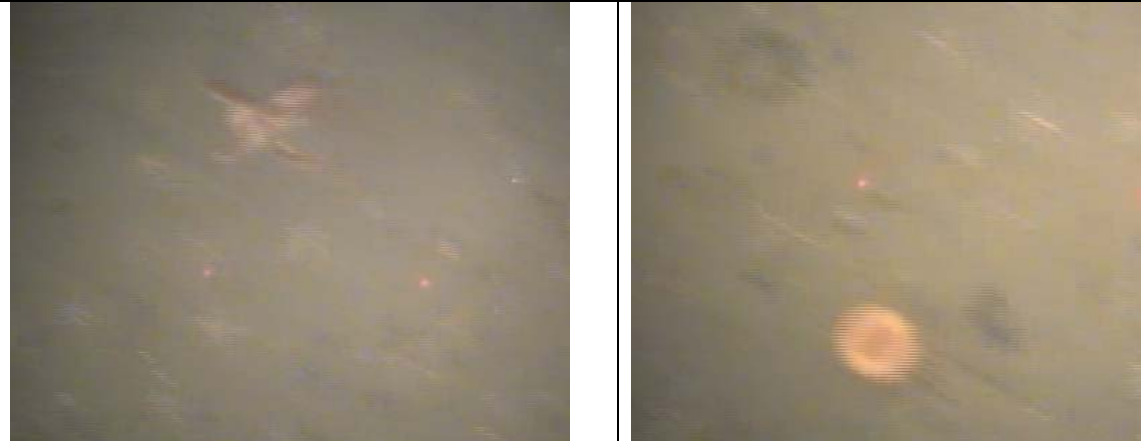
Station	32		
Description	GRID4-1		
Depth	184 – 193 meters of cable out. 193.6 m depth.		
Transect length (m)	606		
Date	5/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°58.3084	138°06.5617	4:32:35
End (off bottom)	69°58.1776	138°07.4306	4:53:37
Species Richness:	22		
Recording time (s):	1230		
Visibility time (s):	1170		
Comment:	<p>No times on video; Mud; mud clumps, tubes; very fast moving; small pink species, counted as <i>Gersemia rubiformis</i> – different variations; large brittle stars; plumes; moon snail and tracks; long white unid. worm; unid. orange star with thin long arms; tubes, siphons common; brittle stars common.</p> <p>6:30 – big scour; few large polychaetes. 192.6 m – few holes, few fish. Need digital photo camera for taking high-resolution shots. End 10:52pm. Time synched with GPS and DVD-R.</p> <p>Fauna logged (Stn32.xls; log32.txt, log32a.txt, log32b.txt)</p> <p>Species recorded: Polychaete, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, <i>Hippasterias sp.</i>, <i>Icasterias panopla</i>, Unid. Asteroidea, <i>Heliometra glacialis</i>, Unid. Holothuroidea, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Moon snail, Unid. Whelk sp., Unid. worms, Unid. Sponge</p>		
			

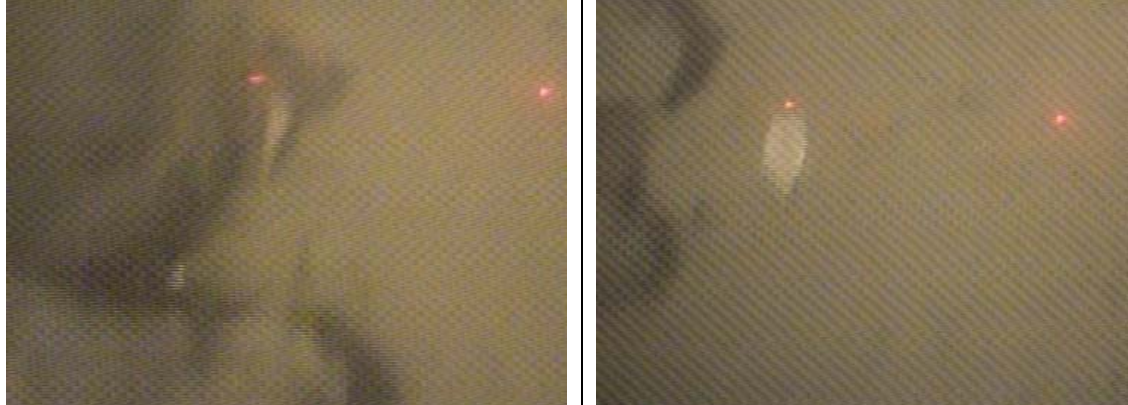
Station	33		
Description	Grid4-1		
Depth	162 m – 170 m (cable)		
Transect length (m)	624		
Date	5/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°58.6838	137°59.7904	5:44:24
End (off bottom)	69°58.5234	138°00.6487	6:05:49
Species Richness:	24		
Recording time (s):	1261		
Visibility time (s):	1261		
Comment:	<p>No times recorded on video; mud; marine snow; striped fish; clear shells (<i>Delectopecten vitreus</i>) throughout; stalked bulbs common; siphons common; small pink species, counted as <i>Gersemia rubiformis</i> – light and darker, some very bumpy; many plumes, some may be recorded as <i>Pachycerianthus sp.</i>; large and small brittle stars; Few active scallops, fish, generally barren, polychaete trails. Fauna logged (Stn33.xls; log33.txt, log33a.txt, log33b.txt)</p> <p>Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, Unid. Coral, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina sp.</i>, Unid. Anenome, Unid. Fish, <i>Icasterias panopla</i>, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Unid. Bivalve, Unid. Nermertean, Unid. worm</p>		
			

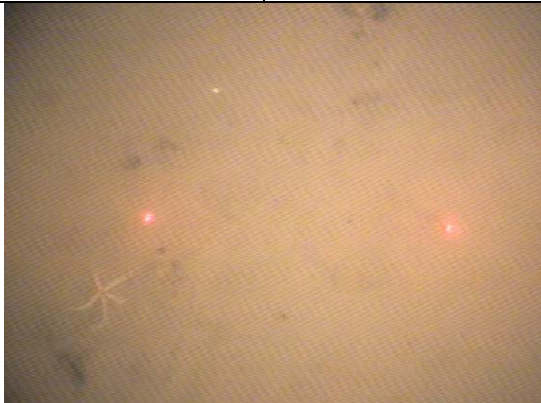

Station	34		
Description	Grid 4-1		
Depth	144 m – 162 cable.		
Transect length (m)	804		
Date	5/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°58.5488	137°55.6420	7:01:26
End (off bottom)	69°58.2875	137°57.5114	7:21:36
Species Richness:	22		
Recording time (s):	1210		
Visibility time (s):	1185		
Comment:	<p>No times recorded on video; video flickers; mud; stalked bulbs throughout; sponges (round, bumpy); small pink species, counted as <i>Gersemia rubiformis</i>; many brittle stars; starts off fast, a lot of marine snow, bad lighting; plume retreats leaving tube, some tube worms may be marked as <i>Pachycerianthus sp.</i>; red long worm; 0:13 – slumping; Horseshoe shrimp burrow Fauna logged (Stn34.xls; log34.txt, log34a.txt) Species recorded: Polychaete, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, <i>Urticina sp.</i>, Unid. Fish, <i>Hippasterias sp.</i>, <i>Icasterias panopla</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Heliometra glacialis</i>, <i>Strongylocentrotus droebachiensis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Unid. worm, Unid. Sponge</p>		
			


Station	35		
Description	Grid 4-2		
Depth	123 – 125 m		
Transect length (m)	792		
Date	5/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°58.6109	137°50.9647	8:43:27
End (off bottom)	69°58.3564	137°52.2814	9:03:31
Species Richness:	22		
Recording time (s):	1204		
Visibility time (s):	1177		
Comment:	<p>No time recorded on video; mud; large corals; tubes, mounds, large burrows common; many fish; moves fairly fast; marine snow at start; many brittle stars; white mass (possibly eggs); small pink species, counted as <i>Gersemia rubiformis</i>; sea spiders; clustered burrows.</p> <p>Fauna logged (Stn35.xls; log35.txt, log35a.txt)</p> <p>Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina sp.</i>, Unid. Anenome, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. worm, Unid. Gastropod, Unid. Sponge</p>		
			

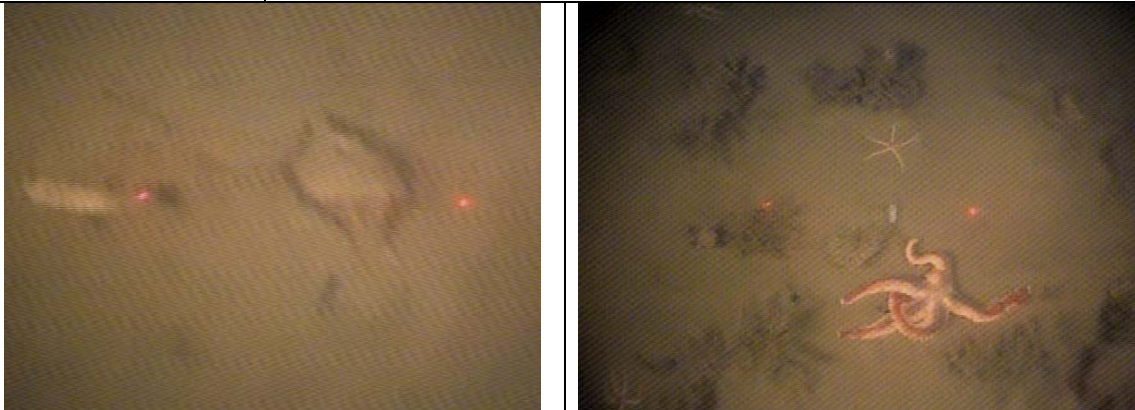
Station	36		
Description	Grid4-2		
Depth	99 m – 120 m cable		
Transect length (m)	763		
Date	5/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°58.5261	137°46.8057	9:55:44
End (off bottom)	69°58.3116	137°47.9343	10:15:50
Species Richness:	29		
Recording time (s):	1206		
Visibility time (s):	1156		
Comment:	<p>No time recorded on video; mud; large burrows; many brittle stars; plumes common; odd white worm-like species (0:59); upright tubes with tops; sea cucumber; large worms – (red worm and possibly a scale worm); visibility in and out at end; unid. species crawling at start (0:04)</p> <p>Fauna logged (Stn36.xls; log36.txt, log36a.txt)</p> <p>Species recorded: Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina sp.</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Leptosynapta inhaerens</i>, <i>Ophiura ophiura</i>, Unid. Whelk sp., Unid. Gastropod, Moon snail, Moon snail egg cases, Unid. Bivalve, Unid. Nermertean, Unid. worm, Unid. Sponge</p>		
			



Station	37		
Description	Grid 4-3		
Depth	82m – 96 m cable		
Transect length (m)	738		
Date	5/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°58.4993	137°42.9234	11:32:18
End (off bottom)	69°58.1745	137°44.0923	11:52:29
Species Richness:	19		
Recording time (s):	1211		
Visibility time (s):	1104		
Comment:	<p>No time recorded on video; fast moving; many burrows; mud; many brittle stars; possible Whale mow mark; <i>Hormathia sp.</i> common</p> <p>Fauna logged (Stn37.xls; log37.txt, log37a.txt)</p> <p>Species recorded: <i>Saduria sabinii</i>, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, Unid. Gastropod, Unid. Nermertean, Unid. Sponge</p>		
			

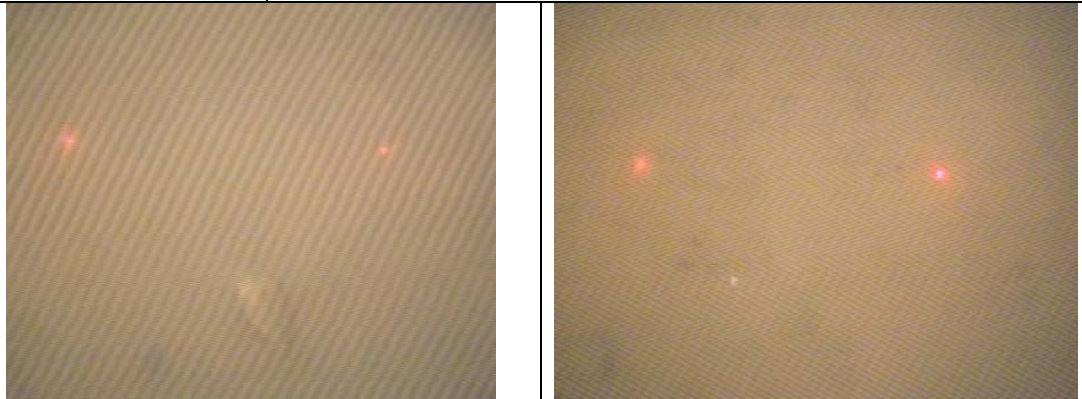
Station	42		
Description	Garry 5		
Depth	Depth 45 – 50 m, going uphill from 50 to 46		
Transect length (m)	426		
Date	5/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°52.0698	137°11.4446	21:47:29
End (off bottom)	69°51.9907	137°12.2579	22:07:31
Species Richness:	14		
Recording time (s):	1202		
Visibility time (s):	764		
Comment:	<p>No time recorded on video; no visibility at start to 1:35; most of transect has low visibility; picture quality low; marine snow; mud; burrows; few brittle stars; isopods common; barren surface; mounds of mud; surface mud soft; tube worms; video skips; Swell interferes with camera work: No bridge log for the end point. Fauna logged (Stn42.xls; log42.txt, log42a.txt) Species recorded: Shrimp, <i>Saduria entomon</i>, <i>Saduria sabini</i>, <i>Alcyonium sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Ophiura ophiura</i>, Unid. coral, Unid. Anenome, Unid. Fish, Unid. Asteroidea, Unid. Gastropod</p>		
			


Station	48		
Description	Garry 4		
Depth	34.4 - 34.8 m		
Transect length (m)	512		
Date	6/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°50.2755	136°59.2946	23:48:52
End (off bottom)	69°50.1248	136°59.9610	00:04:08
Species Richness:	6		
Recording time (s):	867		
Visibility time (s):	423		
Comment:	<p>No times recorded on video; most of transect no visibility; marine snow, lumpy surface, mud soft causing cloudy visibility; few brittle stars; isopods; very barren surface; upright tubes.</p> <p>Fauna logged (Stn48.xls; log48.txt, log48v.txt)</p> <p>Species recorded: <i>Saduria sabinii</i>, <i>Alcyonium sp.</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroida, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i></p>		
			

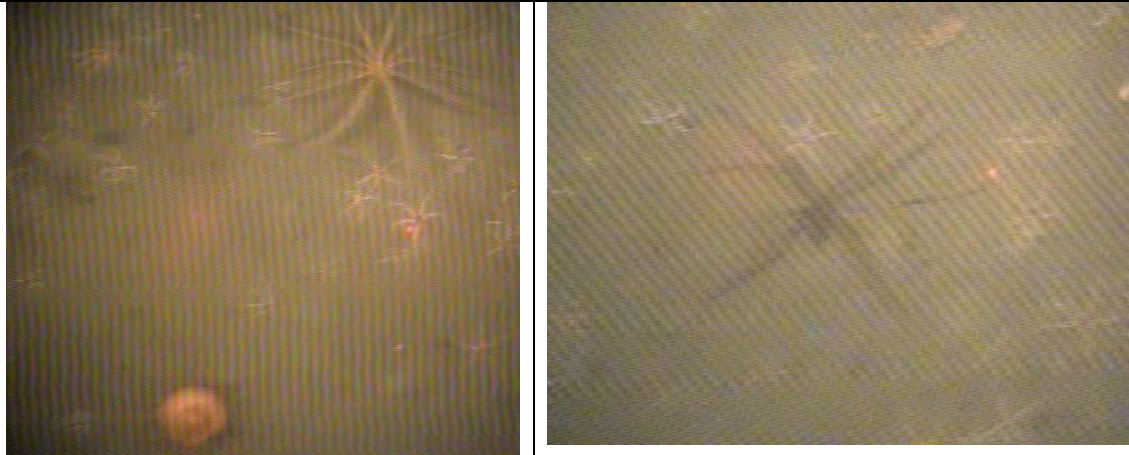
Station	49		
Description	Grid5		
Depth	33 m		
Transect length (m)	526		
Date	6/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°54.2584	137°00.4347	2:23:23
End (off bottom)	69°54.1486	137°01.1877	2:37:51
Species Richness:	10		
Recording time (s):	909		
Visibility time (s):	618		
Comment:	<p>No times recorded on video; soft mud; grainy, marine snow (poor visibility); fast moving; mounds; barren surface; holes; isopods common; video skips; Poor visibility. Small pingo. Fauna logged (Stn49.xls; log49.txt, log49a.txt) Species recorded: <i>Saduria entomon</i>, <i>Saduria sabini</i>, <i>Alcyonium sp.</i>, <i>Urticina sp.</i>, Unid. Anenome, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i></p>		
			

Station	50		
Description	Grid 5		
Depth	49m		
Transect length (m)	957		
Date	6/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°55.9421	137°04.1629	3:19:11
End (off bottom)	69°55.8181	137°05.2731	3:41:52
Species Richness:	15		
Recording time (s):	1358		
Visibility time (s):	608		
Comment:	<p>No times recorded on video; Mud, soft; burrows, tubes common; uneven surface; branchy dark masses (may be bryozoans); unid. Sea Pen; long grey unid. worm; video skips; brittle stars (may be many under surface not visible clearly); Possibly inactive pingo; Patches of bryozoans, corals.</p> <p>At 4:13 climbed to 40 m – 38 m At 5:35 right on top, 35 m depth. 34 m 17:50 on the top again, 43 m. Fauna logged (Stn50.xls; log50.txt, log50a.txt) Species recorded: <i>Saduria entomon</i>, <i>Saduria sabini</i>, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, Unid. Coral, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, Unid. Gastropod, Unid. Whelk, Unid. worm</p>		
			

Station	51		
Description	Grid 5		
Depth	57m		
Transect length (m)	764		
Date	6/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°58.0450	137°12.2218	4:25:34
End (off bottom)	69°58.0142	137°12.6636	4:45:43
Species Richness:	17		
Recording time (s):	1208		
Visibility time (s):	927		
Comment:	<p>No times recorded on video; No visibility at start, marine snow; mud; burrows throughout; unid. tubes with white top; plumes common; Sea Pen; fast moving in sections – poor visibility; mud tubes; isopods; barren;</p> <p>41m on top. Steep pingo. Deep part > 61 m.</p> <p>Fauna logged (Stn51.xls; log51.txt, log51a.txt, log51b.txt)</p> <p>Species recorded:</p> <p>Amphipod, <i>Saduria entomon</i>, <i>Saduria sabini</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. <i>Anenome</i>, Unid. <i>Sea Pen</i>, Unid. Fish, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, <i>Heliometra glacialis</i>, <i>Strongylocentrotus droebachiensis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i></p>		
			

Station	52		
Description	Garry3		
Depth	27.1 – 27.9m		
Transect length (m)	298		
Date	6/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°45.8837	136°51.8463	23:45:16
End (off bottom)	69°45.7550	136°52.1133	00:05:11
Species Richness:	8		
Recording time (s):	1203		
Visibility time (s):	685		
Comment:	<p>No times recorded on video; mud, soft; poor visibility; hits bottom often; grainy visibility; no brittle stars; round 3d mud structures/chunks of mud; barren; isopods; cloudy visibility most of track</p> <p>Fauna logged (Stn52.xls; log52.txt, log52v.txt)</p> <p>Species recorded: Amphipod, Shrimp, <i>Saduria entomon</i>, <i>Saduria sabini</i>, <i>Pachycerianthus fimbriatus</i>, Unid. <i>Anenome</i>, <i>Leptasterias groenlandica</i></p>		
			

Station	57		
Description			
Depth	42m		
Transect length (m)	566		
Date	7/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°42.5522	137°08.5931	2:34:28
End (off bottom)	69°42.2968	137°09.0608	2:55:47
Species Richness:	11		
Recording time (s):	1211		
Visibility time (s):	997		
Comment:	<p>No times recorded on video; mud; large and small burrows; poor lighting; no brittle stars; unusual sea star tube feet seen at 11:48; marine snow, poor visibility at start; plumes (some worm plumes may be identified as <i>Pachycerianthus fimbriatus</i>); isopods; unknown long tubal structure (12:30); trails (gastropods possibly) Hummocky seabed Fauna logged (Stn57.xls; log57.txt, log57v.txt) Species recorded: <i>Saduria sabini</i>, <i>Saduria entomon</i>, <i>Alcyonium sp.</i>, Unid. Coral, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, <i>Gorgonocephalus arcticus</i></p>		
			

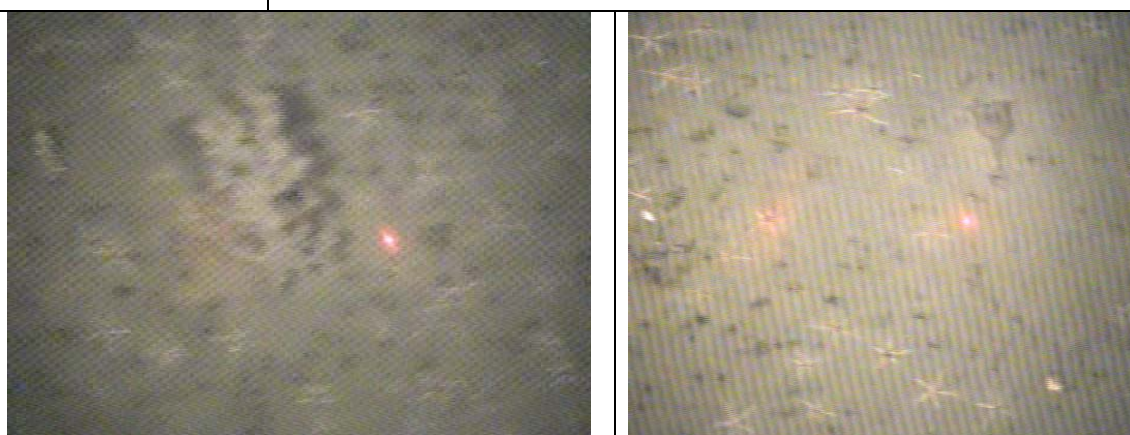
Station	58		
Description			
Depth	61.6m		
Transect length (m)	246		
Date	7/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°42.4220	137°37.4708	4:54:49
End (off bottom)	69°42.2985	137°37.3613	5:16:14
Species Richness:	18		
Recording time (s):	1230		
Visibility time (s):	1170		
Comment:	<p>No times recorded on video; slow, grainy visibility, cloudy; mud; white shell debris; burrows; plumes at surface from in holes; many brittle stars; Nice slow drift. A lot of active amphipods; Arthropod-Pycnogonida.</p> <p>Fauna logged (Stn58.xls; log58.txt, log58a.txt)</p> <p>Species recorded:</p> <p>Amphipod, <i>Saduria sabini</i>, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, Unid. Holothuroidea, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, Unid. Whelk</p>		
			



****NOTE****


[No video for Stn 59; Date: 7/8/2006; on bottom time: 5:59:13; off bottom time: 6:26:33]

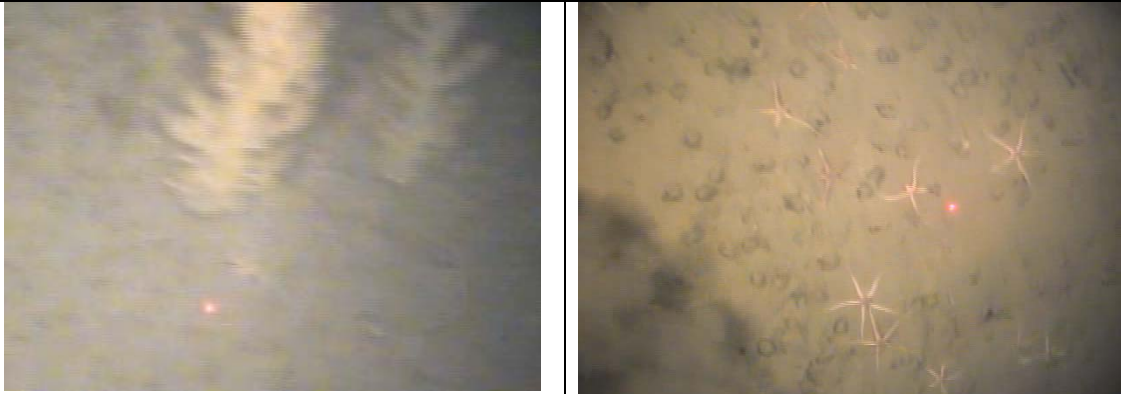
Station	67		
Description			
Depth	103 m		
Transect length (m)	511		
Date	10/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°36.2542	138°03.1034	6:52:09
End (off bottom)	69°36.4190	138°03.7350	7:12:35
Species Richness:	19		
Recording time (s):	1209		
Visibility time (s):	683		


Comment: No times recorded on video; many burrows; large corals; mud; upright tubes and siphons common; bivalve debris; some clear shells (*Delectopecten vitreus*); brittle stars common; red worm (worm or worm like species); white circular worm tube; edge/shelf – surface drop off (7:49); pink/orange bumpy species and small pink species counted as *Gersemia rubiformis*.
 Deepest station along transect 5
 Fauna logged (Stn67.xls; log67.txt, log67a.txt)
 Species recorded:
 Amphipod, Pycnogonida, *Alcyonium sp.*, *Gersemia rubiformis*, *Bolocera tuediae*, *Hormathia sp.*, *Pachycerianthus fimbriatus*, Unid. Anenome, Unid. Fish, *Hippasterias sp.*, *Leptasterias groenlandica*, *Urasterias lincki*, *Heliometra glacialis*, *Gorgonocephalus arcticus*, *Ophiura ophiura*, Unid. Gastropod, Unid. Nermertean, Unid. Sponge

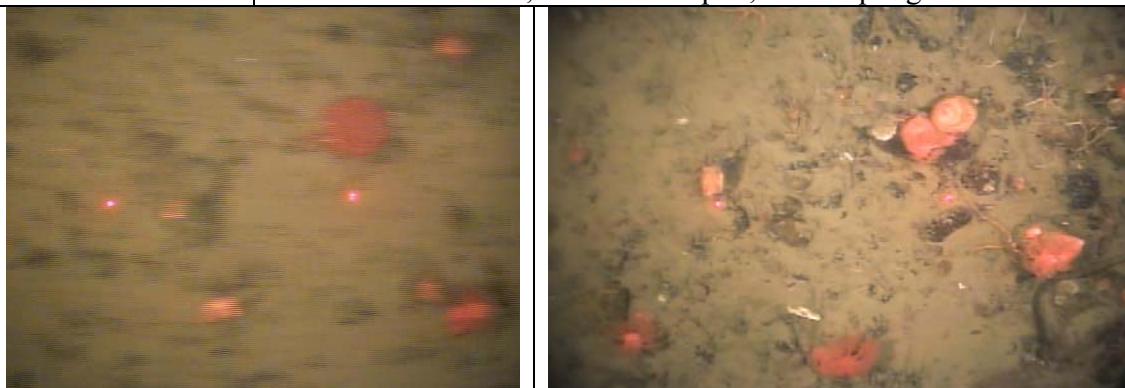


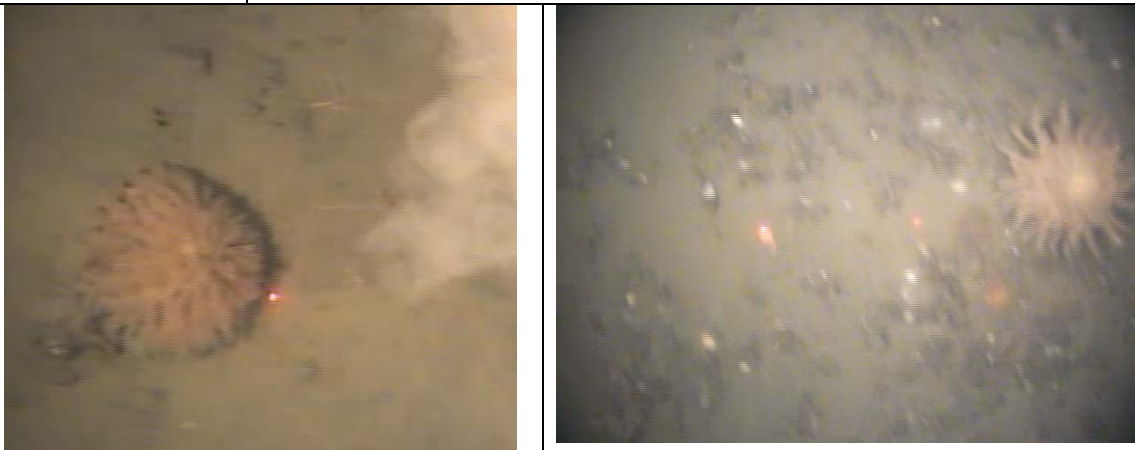
Station	68		
Description			
Depth	89 m - 121 m wire		
Transect length (m)	738		
Date	10/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°35.0414	138°00.7047	7:53:16
End (off bottom)	69°35.3175	138°01.5179	8:13:37
Species Richness:	19		
Recording time (s):	1203		
Visibility time (s):	1123		
Comment:	<p>No times recorded on video; blurry and poor visibility at start; mud, burrows; camera moving in and out of focus; some very large corals and corals very common; <i>Leptasterias groenlandica</i> common; brooding star; sponges; basket stars sometimes on corals; species unknown in/at holes at surface (bivalves possibly); egg case; orange worm shaped species;</p> <p>It would be interesting to measure the corals for size-frequency distribution.</p> <p>Fauna logged (Stn68.xls; log68.txt, log68a.txt, log68p.txt)</p> <p>Species recorded: Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, <i>Antedon bifida</i>, <i>Leptosynapta inhaerens</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, Moon snail egg case, Unid. Gastropod, Unid. worm, Unid. Sponge</p>		
			

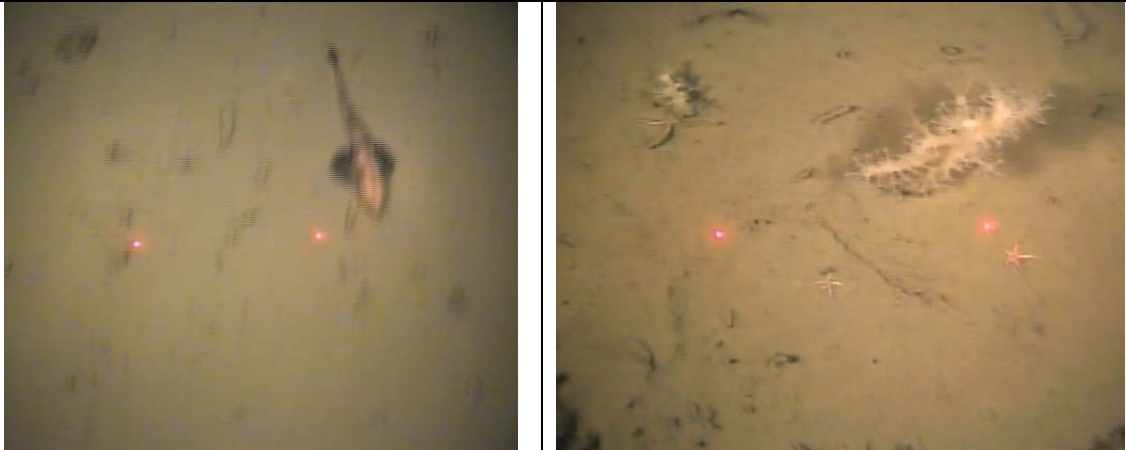
Station	69		
Description			
Depth	71m, 78m wire		
Transect length (m)	1078		
Date	10/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°33.3282	137°59.2504	9:31:52
End (off bottom)	Unknown	Unknown	9:52:08
Species Richness:	13		
Recording time (s):	1679		
Visibility time (s):	675		
Comment:	<p>No times recorded on video; mud; poor visibility – camera on and off bottom, bottom stirred up often; unknown coral is white, branching; many basket stars; tubes, burrows common; unknown species within holes at surface; unknown Sea star; Need heave compensator! Bad video because of a lot of suspended sediment. Clumps of mud. Fauna logged (Stn69.xls; log69.txt, log69a.txt, log69v.txt) Species recorded: <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, Unid. Coral, <i>Hormathia sp.</i>, Unid. Anenome, Unid. Fish, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, Unid. Asteroidea, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i></p>		
			

Station	70		
Description			
Depth	60		
Transect length (m)	750		
Date	10/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°32.4504	137°57.2130	10:30:59
End (off bottom)	69°32.8229	137°57.6641	10:52:10
Species Richness:	26		
Recording time (s):	1216		
Visibility time (s):	1112		
Comment:	<p>No times recorded on video; mud; poor visibility at start, marine snow; burrows, brittle stars common; unknown species in holes at surface; whitish tubes, upright; red worm; sunken log; 13:49 – gorgonian coral possibly. Fauna logged (Stn70.xls; log70.txt, log70a.txt, log70v.txt) Species recorded: Amphipod, <i>Saduria sabini</i>, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Metridium sp.</i>, <i>Pachycerianthus fimbriatus</i>, Unid. Anenome, Unid. Fish, <i>Crossaster papposus</i>, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, <i>Urasterias lincki</i>, <i>Pteraster militaris</i>, Unid. Asteroidea, <i>Poraniomorpha sp.</i>, <i>Solaster sp.</i>, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiura ophiura</i>, Moon snail, Unid. Gastropod, Unid. worm</p>		
			

Station	103		
Description			
Depth	37		
Transect length (m)	403		
Date	12/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°44.2551	139°06.4288	6:48:37
End (off bottom)	69°44.1872	139°05.8398	7:10:10
Species Richness:	24		
Recording time (s):	1505		
Visibility time (s):	1060		
Comment:	<p>No times recorded on video; large mud covered round mounds at start; mud, gravel and large rocks/boulders; uneven surface, mounds, rocks, covered with species – high biodiversity; white debris (shells?); many plumes (some worms may be counted as <i>Pachycerianthus fimbriatus</i>); sponges of different types; many Holothuroidea (pink); many anenomes (variety of species); Gravel bottom with boulders. High biodiversity and complexity. 2 m troughs. Clay chimneys of gas-related structures? Multibeam this. Started at 37 – 42 m. a lot of large elliptical burrows.</p> <p>**Station listed as 102 on bridge log used for 103 on video (no 102 on videos), and follows for stations after (103 on bridge log is 104 video; 104 log is 105 video; and 105 log is 106 video – there was no 106 on bridge log)**</p> <p>Fauna logged (Stn103.xls; log103a1.txt, log103a.txt, log103b.txt, log103c.txt)</p> <p>Species recorded: Polychaete, Amphipod, <i>Alcyonium sp.</i>, Unid. Coral, <i>Bolocera tuediae</i>, <i>Metridium sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina sp.</i>, Unid. Anenome, Unid. Fish, <i>Asterias sp.</i>, <i>Crossaster papposus</i>, <i>Heliometra glacialis</i>, <i>Strongylocentrotus droebachiensis</i>, Unid. Holothuroidea, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Gastropod, Turitellid gastropod, Unid. Nermertean, Unid. worm, Unid. Sponge</p>		
			

Station	104		
Description			
Depth	53		
Transect length (m)	649		
Date	12/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°45.6632	139°01.2333	7:50:02
End (off bottom)	69°45.4060	139°00.5332	8:10:41
Species Richness:	21		
Recording time (s):	1287		
Visibility time (s):	1048		
Comment:	<p>No times recorded on video; Mud, gravel and rocks; many anenomes; multiple species of anenomes; fast moving; sponges of different varieties;</p> <p>Complex gravel, high abundance of unid. Holothuroidea (pink) (<i>Cucumaria</i> sp.?); Rounded cobbles, anemones, conspicuous branches of possible bryozoans</p> <p>Fauna logged (Stn104.xls; log104a.txt, log104v.txt, log104b.txt, log104c.txt, log104d.txt)</p> <p>Species recorded:</p> <p>Unid. coral, <i>Bolocera tuediae</i>, <i>Hormathia</i> sp., <i>Metridium</i> sp., <i>Pachycerianthus fimbriatus</i>, <i>Urticina</i> sp., Unid. Anenome, Unid. Fish, <i>Asterias</i> sp., <i>Crossaster papposus</i>, <i>Hippasterias</i> sp., <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Strongylocentrotus droebachiensis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Holothuroidea, Unid. Gastropod, Unid. Sponge</p>		
			

Station	105		
Description			
Depth	76m		
Transect length (m)	459		
Date	12/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°47.2518	138°56.3455	9:03:44
End (off bottom)	69°47.0048	138°56.3903	9:24:04
Species Richness:	22		
Recording time:	1222		
Visibility time (s):	831		
Comment:	<p>No times recorded on video; mud, lumpy surface, mounds of mud; poor visibility – hitting bottom; burrows, tubes, brittle stars, and anenomes common; sponges; mounds with tubes – entangled species; Holothuroidea (pink species); uneven surfaces, rocks; bryozoans; urchins; some gravel</p> <p>Some coral, some “seep holes”. Drifting SW.</p> <p>Fauna logged (Stn105.xls; log105a1.txt, log105a.txt, log105v.txt)</p> <p>Species recorded:</p> <p>Polychaete, Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Metridium sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina sp.</i>, Unid. Anenome, Unid. Fish, <i>Asterias sp.</i>, Unid. Asteroidea, <i>Poraniomorpha sp.</i>, <i>Antedon bifida</i>, <i>Heliometra glacialis</i>, <i>Strongylocentrotus droebachiensis</i>, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Unid. Holothuroidea, Unid. Gastropod, Unid. Sponge</p>		
			

Station	106		
Description			
Depth	163 m		
Transect length (m)	675		
Date	12/8/2006		
	Latitude	Longitude	Time
Start (on bottom)	69°48.3218	138°53.2696	10:21:26
End (off bottom)	69°48.0239	138°53.8684	10:43:05
Species Richness:	28		
Recording time (s):	1286		
Visibility time (s):	1219		
Comment:	<p>No times recorded on video; mud, smooth; burrows common; unfamiliar looking corals; small burrows/holes grouped together and large burrows; siphons, tubes and plumes common; some plumes may be missed due to shadowing; different fish species at 16:32; red worm or worm-like species; white branching coral; different species of coral. 164 m ends at 150 m.</p> <p>Fauna logged (Stn106.xls; log106a.txt, log106b.txt, log106v.txt)</p> <p>Species recorded: Amphipod, Pycnogonida, <i>Alcyonium sp.</i>, <i>Gersemia rubiformis</i>, Unid. Coral, <i>Bolocera tuediae</i>, <i>Hormathia sp.</i>, <i>Metridium sp.</i>, <i>Pachycerianthus fimbriatus</i>, <i>Urticina sp.</i>, Unid. Anenome, Unid. Fish, <i>Crossaster papposus</i>, <i>Hippasterias sp.</i>, <i>Leptasterias groenlandica</i>, Unid. Asteroidea, <i>Antedon bifida</i>, Unid. Holothuroidea, <i>Gorgonocephalus arcticus</i>, <i>Ophiacantha bidentata</i>, <i>Ophiura ophiura</i>, Moon snail, Unid. Whelk, Unid. Gastropod, Unid. Nermertean, Unid. worm, Unid. Sponge</p>		
			

Appendix 2. Photographs of species/substrate features identified



Unidentified Fish



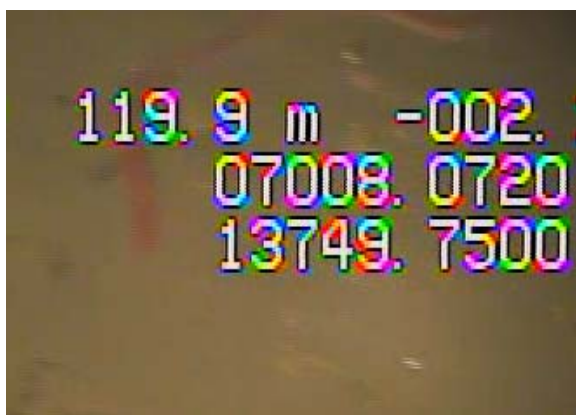
Unidentified Nermertean - 1 long red worm



Unidentified scale (?) worm



Unidentified worm - long red worm



Unidentified Nermertean – long red worm



Unidentified worm – Pirapulid worm



Unidentified worm 1 – orange



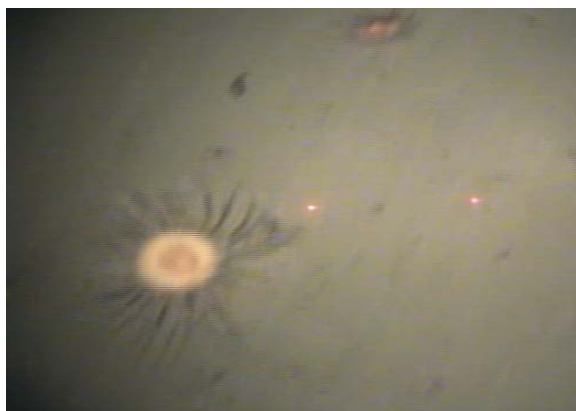
Unidentified worm - Sipunculid worm



Unidentified Sea pen



Unidentified coral - white branchy coral



Hormathia sp



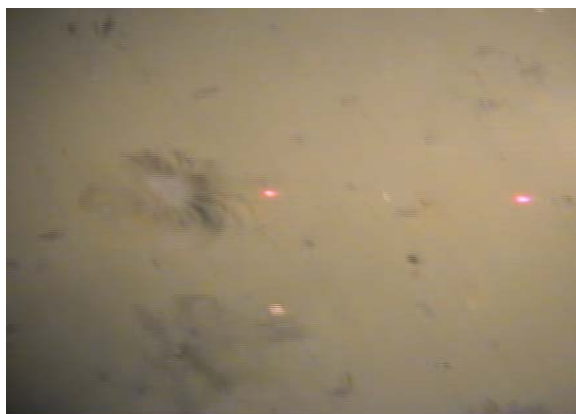
Metridium sp.



Bolocera tuediae



Halcampa sp.



Pachycerianthus fimbriatus



Urticina sp.



Gersemia rubiformis



Alcyonium sp.

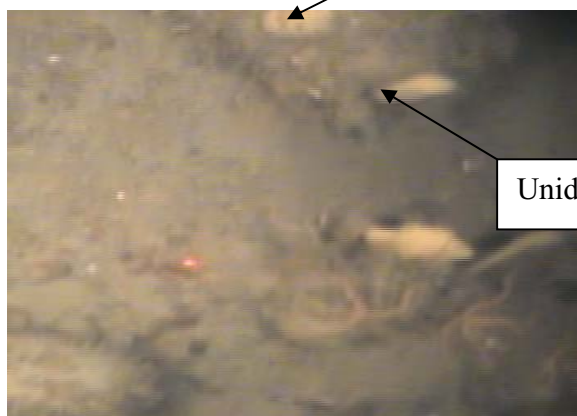


Alcyonium sp.

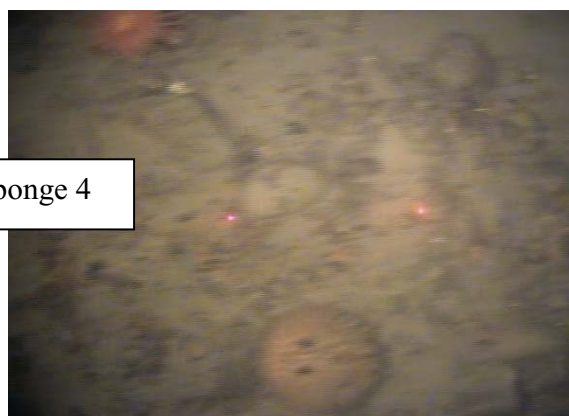


Alcyonium sp., *Gorgonocephalus arcticus*

Unid. Sponge 2



Unidentified sponges (Unid. sponge 2; Unid. Sponge 4)



Unidentified sponge 1

Unid. Sponge 4



Unidentified Sponge 3



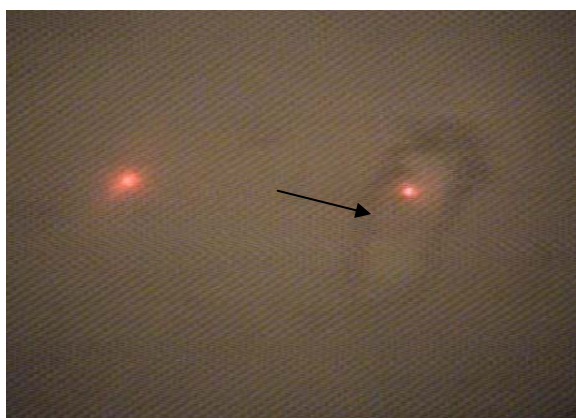
Unidentified sponge 2; *Urticina* sp.



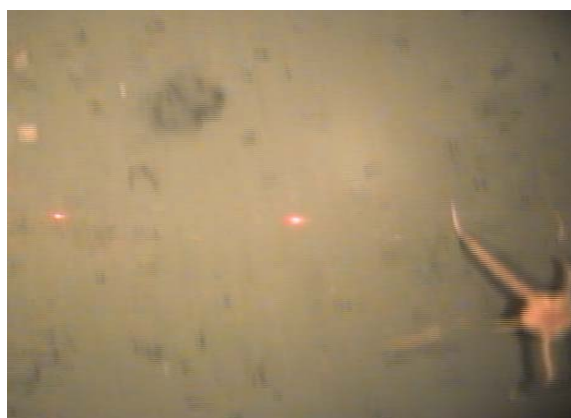
Strongylocentrotus droebachiensis



Unidentified Holothuroidea 1



Leptosynapta inhaerens



Unidentified star 1, long thin arms



Urasterias lincki ?



Crossaster papposus



Asterias sp.



Icasterias panopla



Leptasterias groenlandica



Urasterias lincki



Hippasterias sp.



Leptasterias groenlandica



Poraniomorpha sp.



Ophiura ophiura



Ophiacantha bidentata



Antedon bifida



Heliometra glacialis, Unidentified whelk



Gorgonocephalus arcticus



Pycnogonida –*Nymphon* or *Collossendeis* sp.



Pycnogonida – *Nymphon* sp.



Saduria entomon



Saduria sabini



Moon snail, track



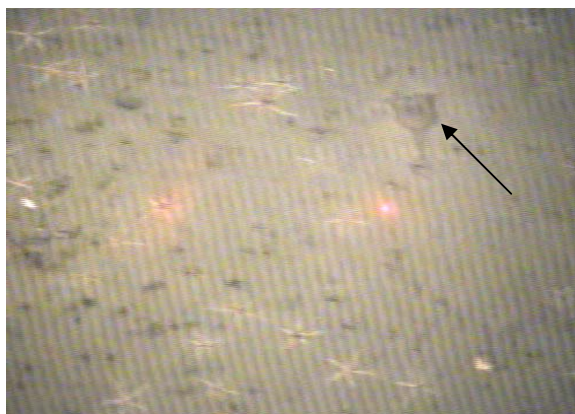
Delectopecten vitreus



Unidentified whelk



Unidentified species. At surface -bivalves?



Unidentified bulbous species (stalked jelly?)



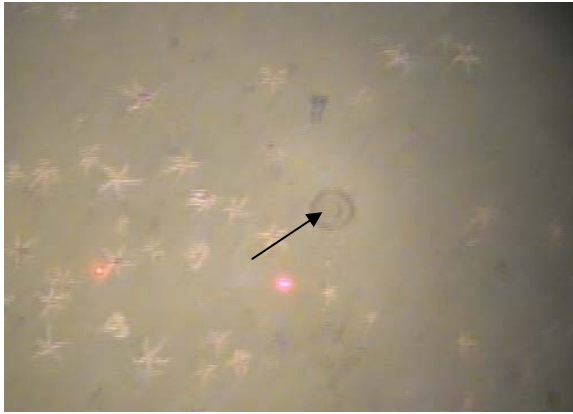
Large infaunal burrows ("honeycomb" cluster)



Siphons, bulbs



Unidentified egg mass



Egg case



Unidentified Bryozoan