



GSC OPEN FILE 3745

# Cruise Report

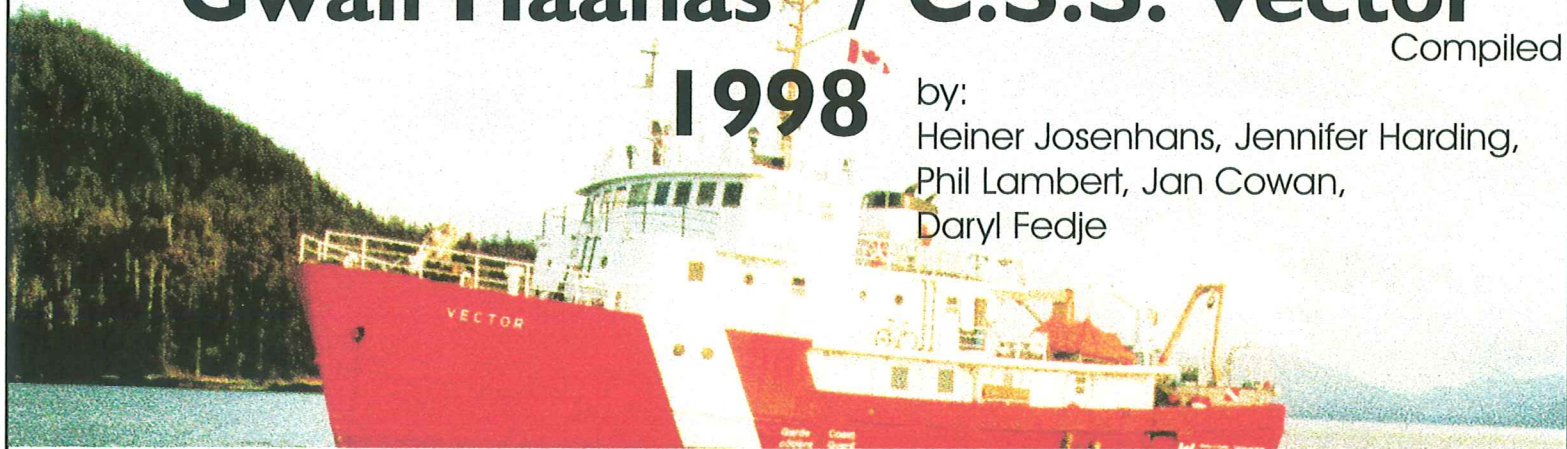
## “Gwaii Haanas” / C.S.S. Vector

Compiled

# 1998

by:

Heiner Josenhans, Jennifer Harding,  
Phil Lambert, Jan Cowan,  
Daryl Fedje



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# The Crew



# Cruise report

C.S.S. Vector 98 and "Gwaii Haanas" 98

Compiled by: Heiner Josenhans, Jennifer Harding, Phil Lambert, Jan Cowan, and Daryl Fedje

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## **Cruise report**

### **C.S.S. Vector 98 and “Gwaii Haanas” 98**

#### **Cruise dates:**

C.S.S. Vector: May 13-18, 1998

“Gwaii Haanas” bottom grab and video program: May 19-20, 1998

#### Scientific staff list, duties and affiliation

Heiner Josenhans	chief geologist (Geological Survey of Canada)
Daryl Fedje	chief archaeologist (Parks Canada)
Joanne MacSporran	archaeologist (volunteer)
Jennifer Harding	navigation technician (Geological Survey of Canada)
Ian Sumpter	archaeologist (Parks Canada)
Phil Lambert	biologist (British Columbia Museum)
Jordan Yeltatzie	archaeologist (Parks Canada)

### **Cruise Objective**

To collect large volume IKU bottom samples on sites chosen from the bathymetric digital elevation model in an effort to locate drowned archaeological sites and to sample and describe the epi and in-fauna within the different seabed types throughout Juan Perez Sound. We also collected bottom video with a remote operated vehicle to visually characterize the sea floor.

### **Equipment**

Navigation was based on Differential Global Positioning System using NAD 83 as reference datum. Samples were collected with an IKU single wire grab which collects approximately .75 cu metre of sediment when full. A Van Veen sampler was used from the

Gwaii Haanas and typically sampled 2-3 litres per site. Bottom images were collected with a tethered surface controlled SEACLOPS 500 PRO camera system and recorded on VHS. The raw data was subsequently edited and is included in this report.

## **Sampling Strategy**

Sample sites were chosen from the Digital Elevation Models (DEM) based on archaeological site potential, potential for dating sea-level positions in early post-glacial time and for biological infauna classification.

Targets for sea-level history sampling were fluvial features which DEM imagery suggested were formed during late-glacial marine regression and deltas formed during marine regression and transgression.

Targets for location of archaeological sites included bedrock benches and terrace edges along rivers and embayments, alluvial fans, beaches and deltas. Factors considered in sample site selection included protection (for site suitability and site survival through marine transgression), potential of associated landscape for shellfish and finfish, southern exposure and proximity to freshwater sources (paleo-creeks and gulleys).

Sixty-five IKU grabs were retrieved at the Juan Perez target sites at locations where lag surfaces or intact fluvial gravels were encountered. Where matrix was largely recent marine mud, a single sample was examined. In a number of instances rock or coarse lag prevented or limited sample recovery. Recovered samples were described for matrix components and presence or absence of intact strata and, where appropriate, sampled for paleo-botanical analysis and dating. Subsequently the matrix was wet sieved through nested 6mm and 3mm mesh. The coarse matrix

was described and examined for paleo-botanical, faunal and archaeological materials. Modern and fossil flora and fauna were retained for analysis and the mineral fraction was described.

## Results

Significant results from the field programme include identification and dating of deltas, paleo-beaches and lagoonal deposits, recovery of in-situ tree roots and recovery of a prehistoric stone tool. Paleo-beaches and intertidal areas were confirmed through recovery of intertidal shellfish at nine locations during grab sampling. Typical assemblages included butter clam, littleneck clam, mussels, oyster and jingle shell, species which are specifically intertidal. Recovered assemblages ranged from a few specimens to up to 20 per cent of sample volume. Shellfish abundance appears to relate to both environment and rate of sea-level rise. Samples showing most productivity were from a large, protected flat that would have been intertidal when sea-level was at 131m. The tidal flat dates to 11,000 BP.

In-situ tree roots (sample 47) were recovered from a broad, level terrace at 51 m water depth in southwestern Juan Perez Sound. The roots extend from a muddy gravel lag down into an underlying sandy gravel. The wood is from a coniferous tree identified as spruce (Zhang and Hebda 1998) and has been dated to 10,500 BP.

A single stone tool was recovered from a lag sample (station 45) taken from a depth of 53 m in westernmost Juan Perez Sound. The find site is on a drowned delta flood plain one kilometre offshore of Moresby Island and is about 30 m east of a 4 m terrace formed by fluvial downcutting during marine regression. The tool is a simple flake 10 cm in length and a little less than 1 cm in thickness. The vitreous black basalt artifact displays a number of flaking

characteristics which clearly attest to human manufacture by billet or soft hammer knapping. The thin, and still extremely sharp, edge and nature of edge use-wear suggest the tool was most likely used as a knife for cutting meat or soft vegetable material. The artifact is encrusted with modern subtidal barnacles and crustaceans.

Ten remote operated video transects were completed and recorded on VHS video. These transects illustrate the dynamics and variability of different seabed types and demonstrate the intensity of bioturbation within these biologically active bottom types. Video transects were completed at the anchorages off Anthony and Hotspring Islands and in Burnaby Narrows in an attempt to document bottom disturbance by anchors and fishing activity. No visible evidence of man made bottom disturbance was seen. Bioturbation and bottom currents appear to obliterate the bottom disturbance within days and hours. Similarly in Burnaby narrows, the video transect did not reveal evidence of bottom disturbance by bottom fishing activity. The video data was edited and includes location and depth information for each of the ten sites. The video is available as part of this open file on request to the author.

## **Summary**

Identification of early post-glacial intertidal shellfish beds rich in species used by coastal people is important in that this demonstrates the availability of key maritime resources much earlier than previously known. Previous investigations have shown that edible intertidal species (butter, littleneck and bentnose clam and bay mussel) were abundant in this area during the late stages of rapid marine transgression. The newly discovered and dated intertidal shellfish sites identify additional points on the regional sea-level curve. Retrieval of rooted coniferous trees at a

sample site at 50 m water depth provides a physical glimpse of the vegetated terrain inferred from the palynological and sea-level histories.

The recovery of a stone tool at 53 m water depth in combination with identification of intertidal shellfish-rich beaches at 125m depth portend eventual discovery of significantly older archaeological sites in these deeply drowned landscapes of western Hecate Strait.



## **Acknowledgement**

We thank Tucker Brown of the "Gwaii Haanas" and the entire ships crew of the C.S.S. Vector for their dedicated effort and participation at sea. Jan Cowan identified the biological samples. We thank Ernie Gladstone and his Parks crew for logistical support in Gwaii Haanas.

# Queen Charlotte Islands

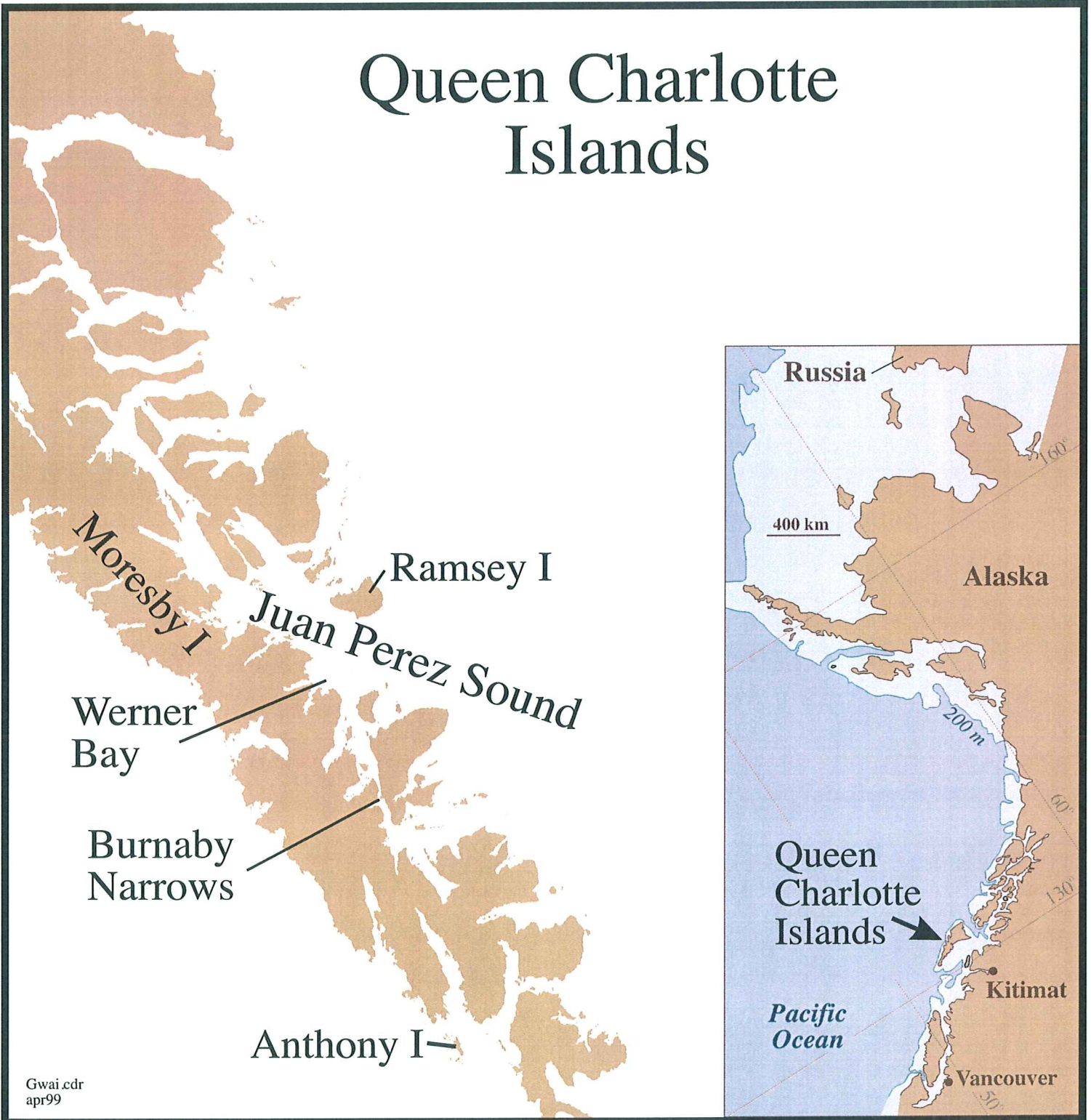
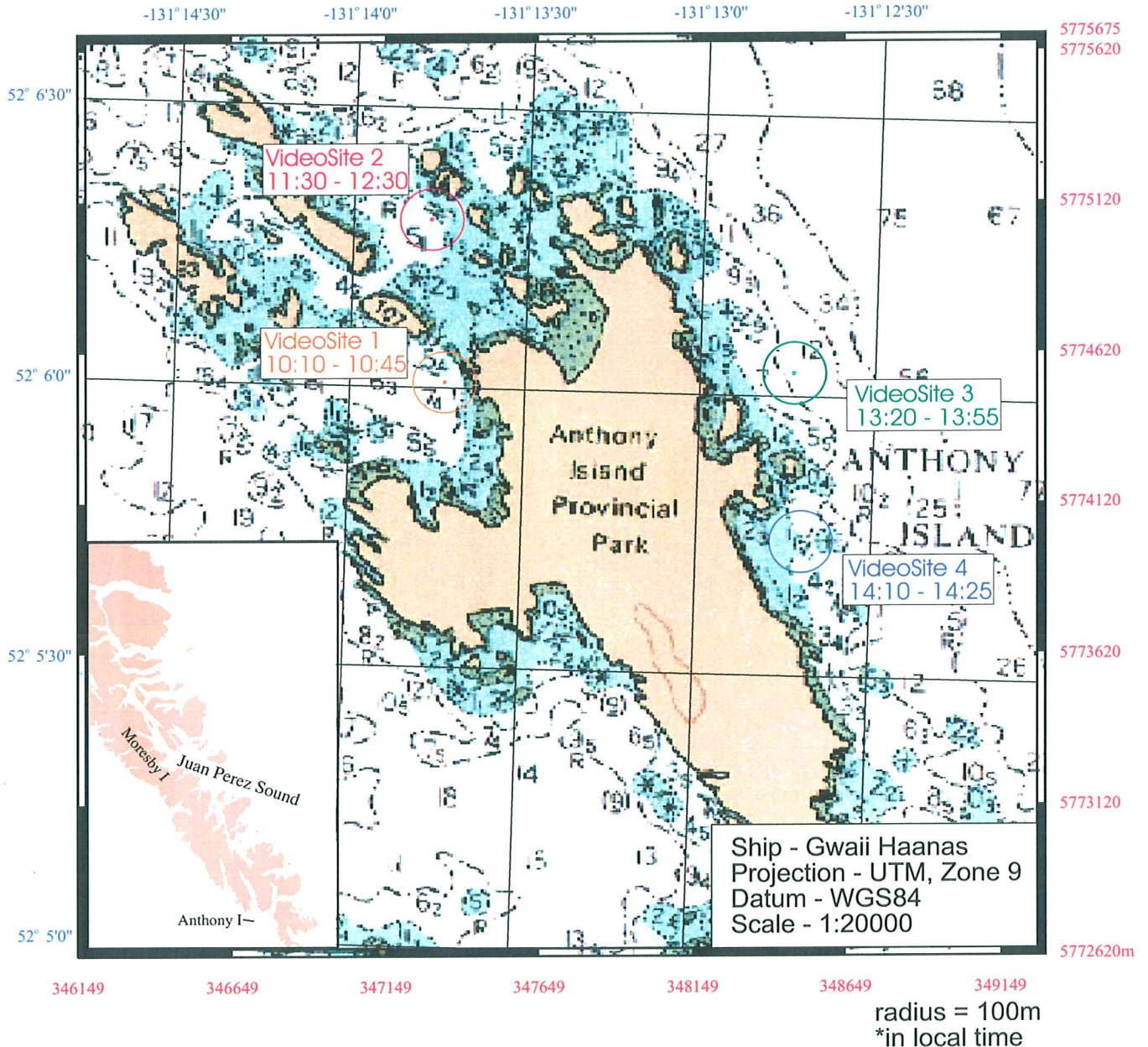


Figure 1



# Anthony Island Video Sample Locations GWA198 Cruise



Natural Resources  
Canada

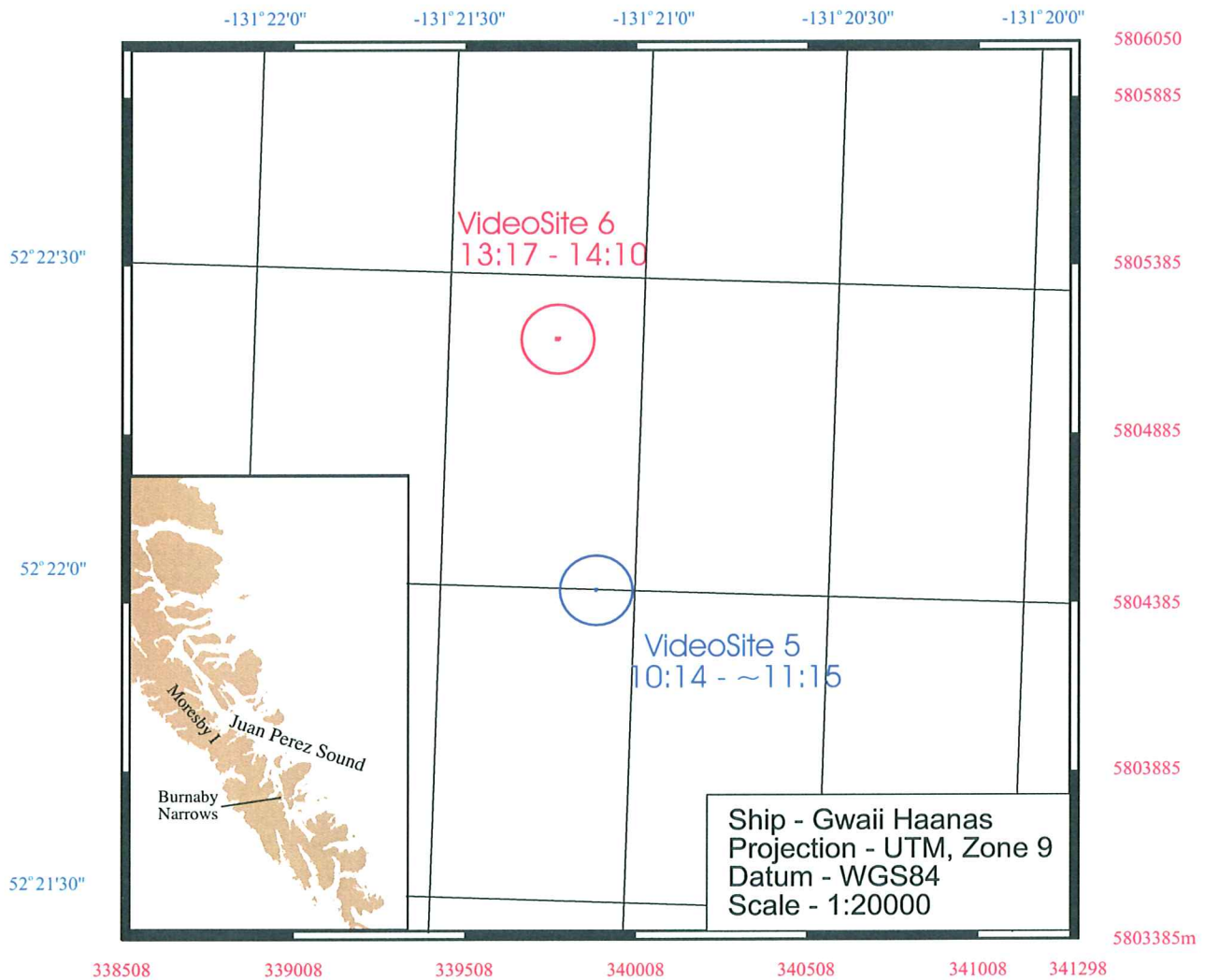
Ressources naturelles  
Canada

J. Harding  
anthony\_video.cdr  
Apr 99

Figure 2



# Burnaby Narrows Video Sample Locations GWA198 Cruise



Natural Resources  
Canada

Ressources naturelles  
Canada

J. Harding  
N\_Burnaby\_video.cdr  
Apr99

Figure 3



# Juan Perez Sound Video Sample Locations GWA198 Cruise

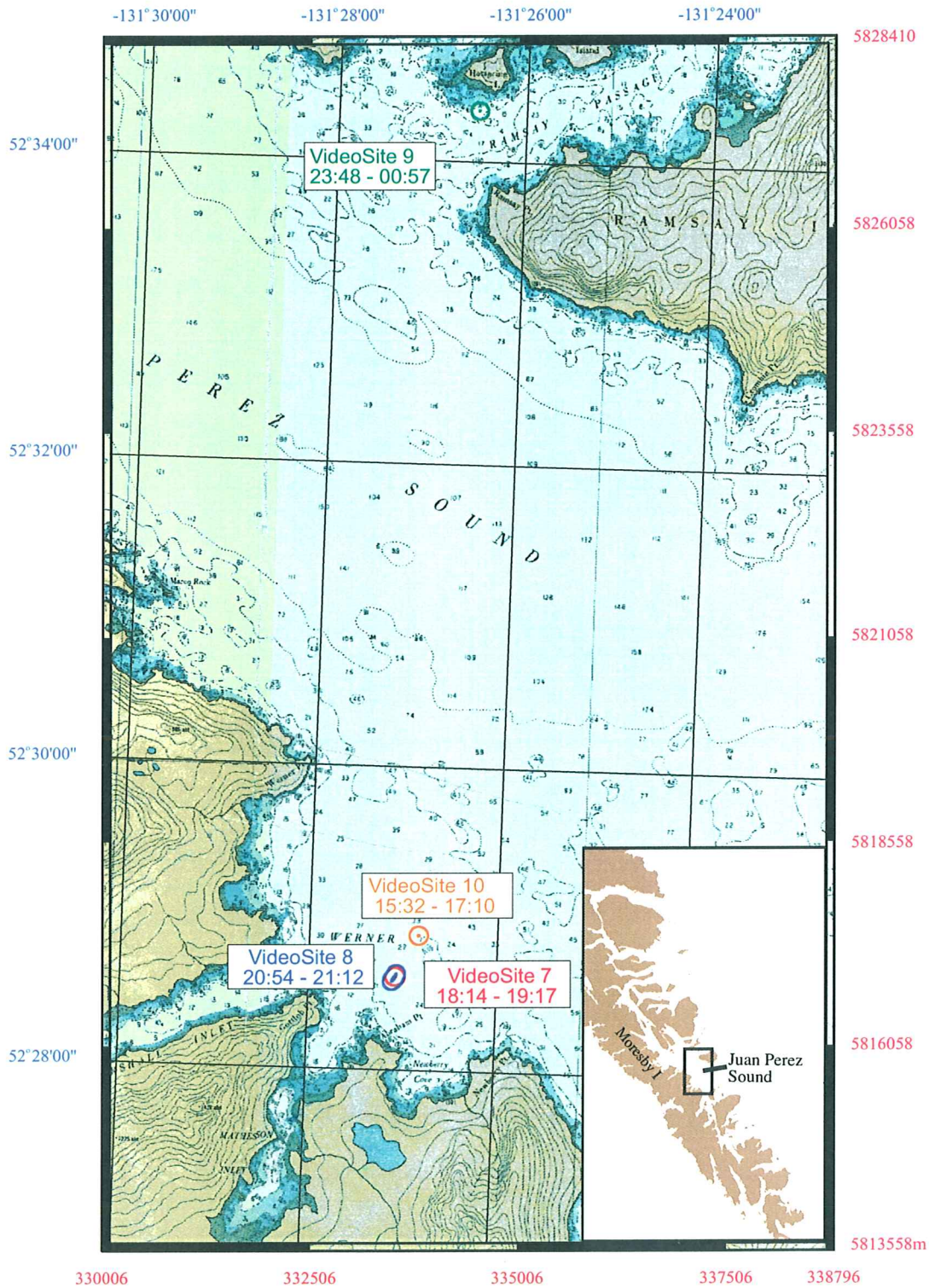
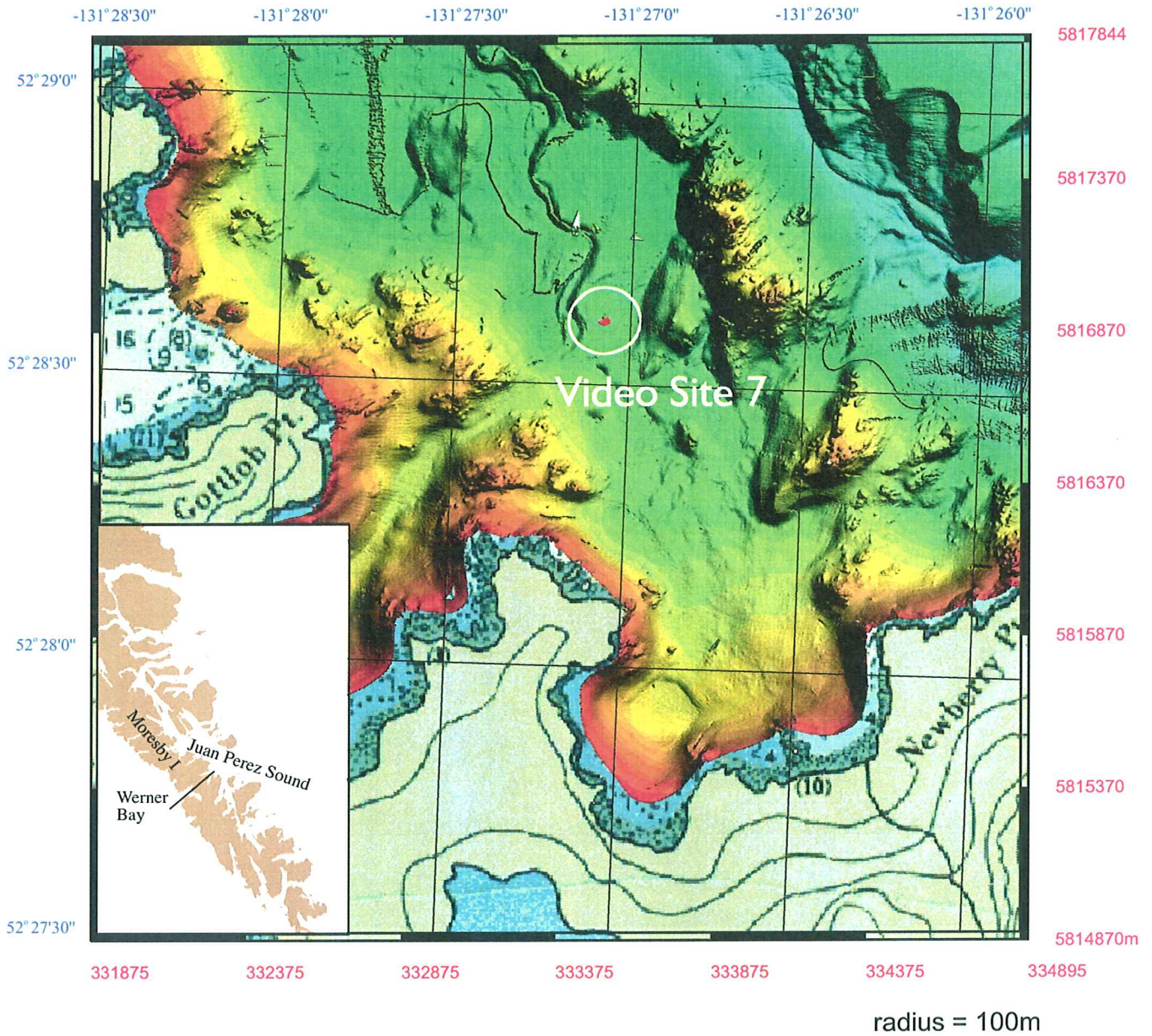


Figure 4



# Werner Bay - VideoSite 7 May 19 1998 - JD 139 18:14 - 19:17 GWA198 Cruise



Natural Resources  
Canada

Ressources naturelles  
Canada

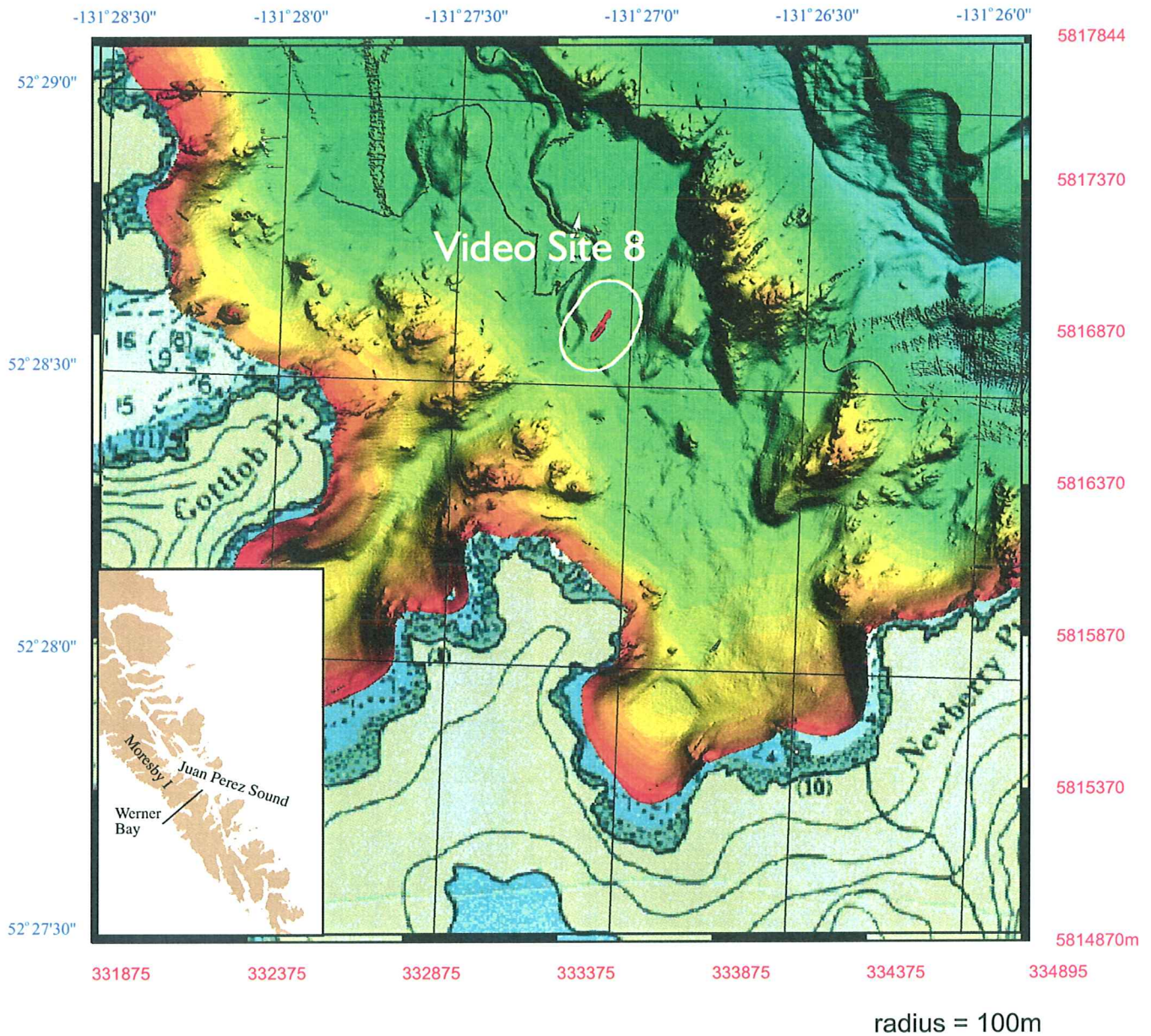
J. Harding  
VideoSite7.cdr  
Apr 99

Figure 5



# Werner Bay - VideoSite 8

May 19 1998 - JD 139  
20:54 - 21:12  
GWA198 Cruise



Natural Resources  
Canada

Ressources naturelles  
Canada

J. Harding  
VideoSite8.cdr  
Apr99

Figure 6



Hotspring Island - VideoSite 9  
May 19-20 1998 - JD 139-140  
23:48 - 00:57  
GWA198 Cruise

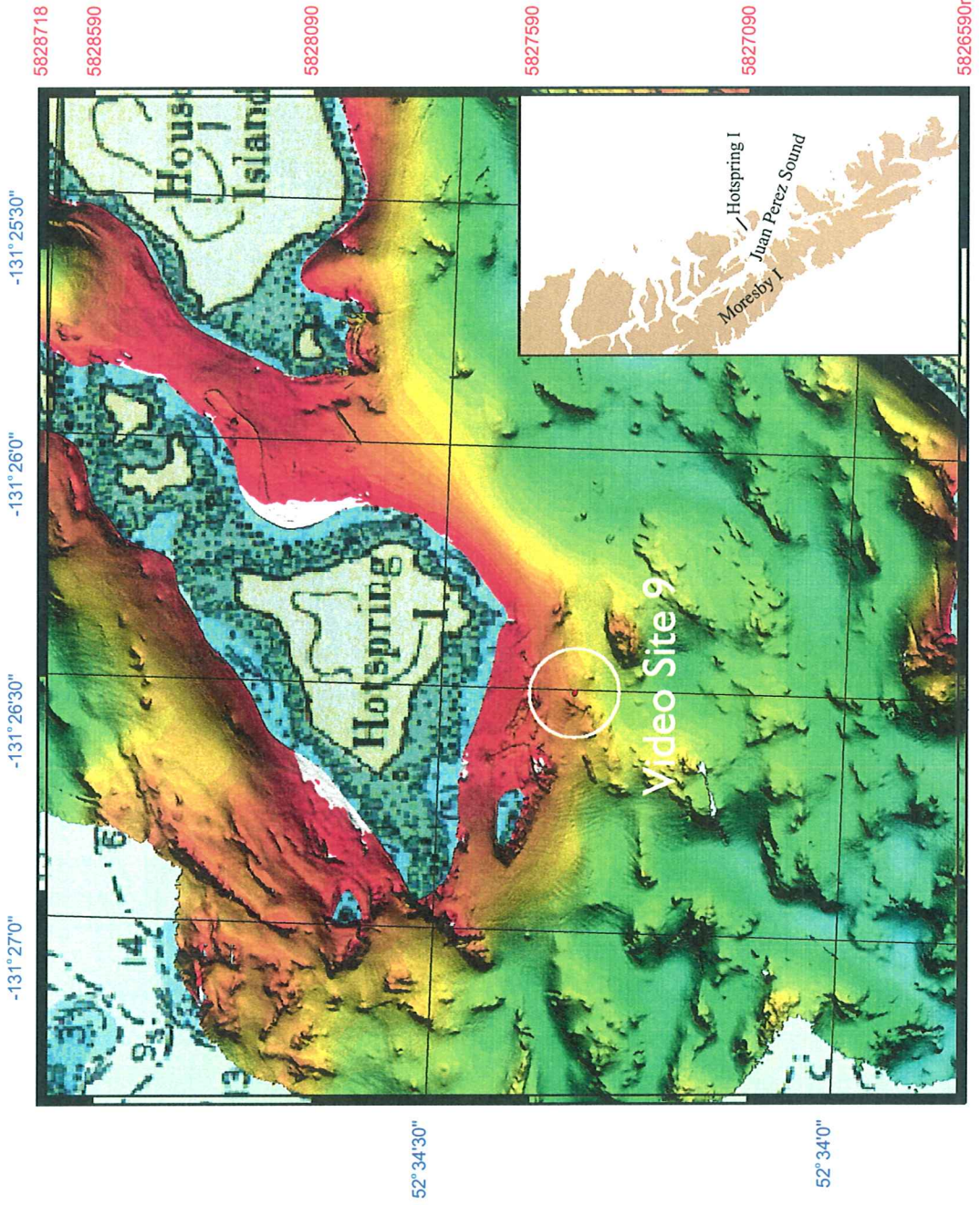


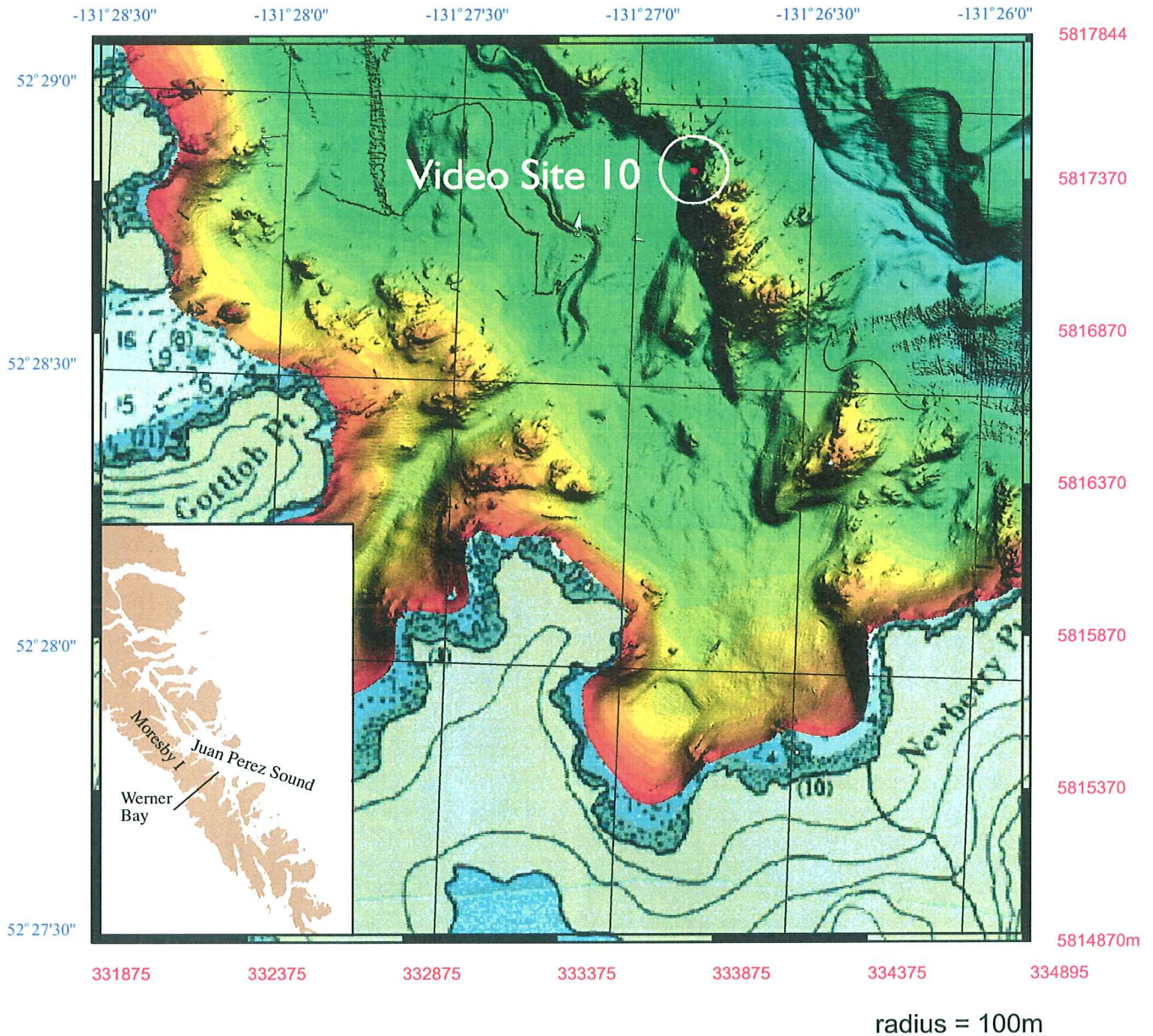
Figure 7





# Werner Bay - VideoSite 10

May 20 1998 - JD 140  
15:40 - 17:10  
GWAI98 Cruise



Natural Resources  
Canada

Ressources naturelles  
Canada

J. Harding  
VideoSite10.cdr  
Apr99

Figure 8



# Werner Bay IKU Sample Sites Vector98 Cruise

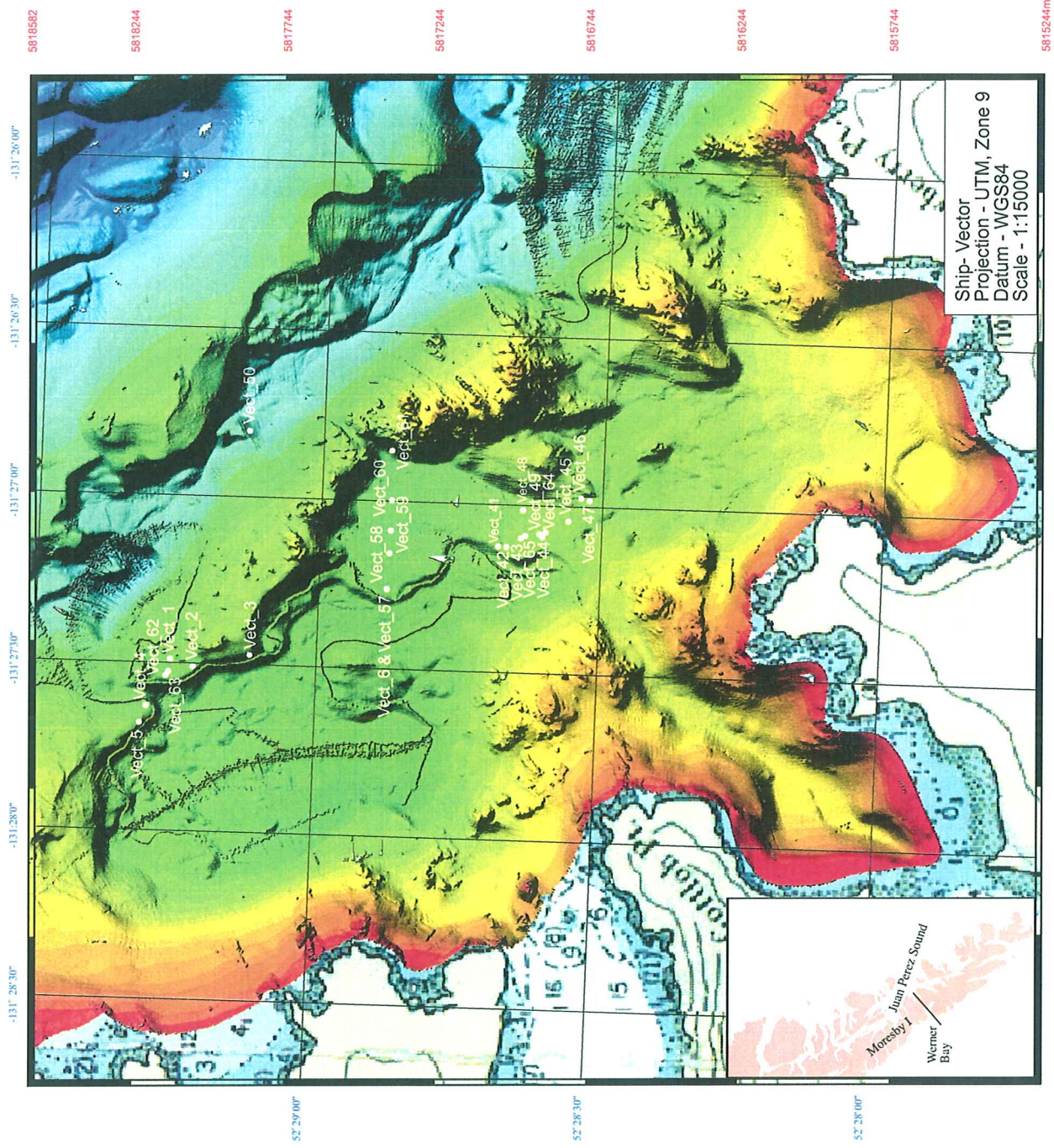
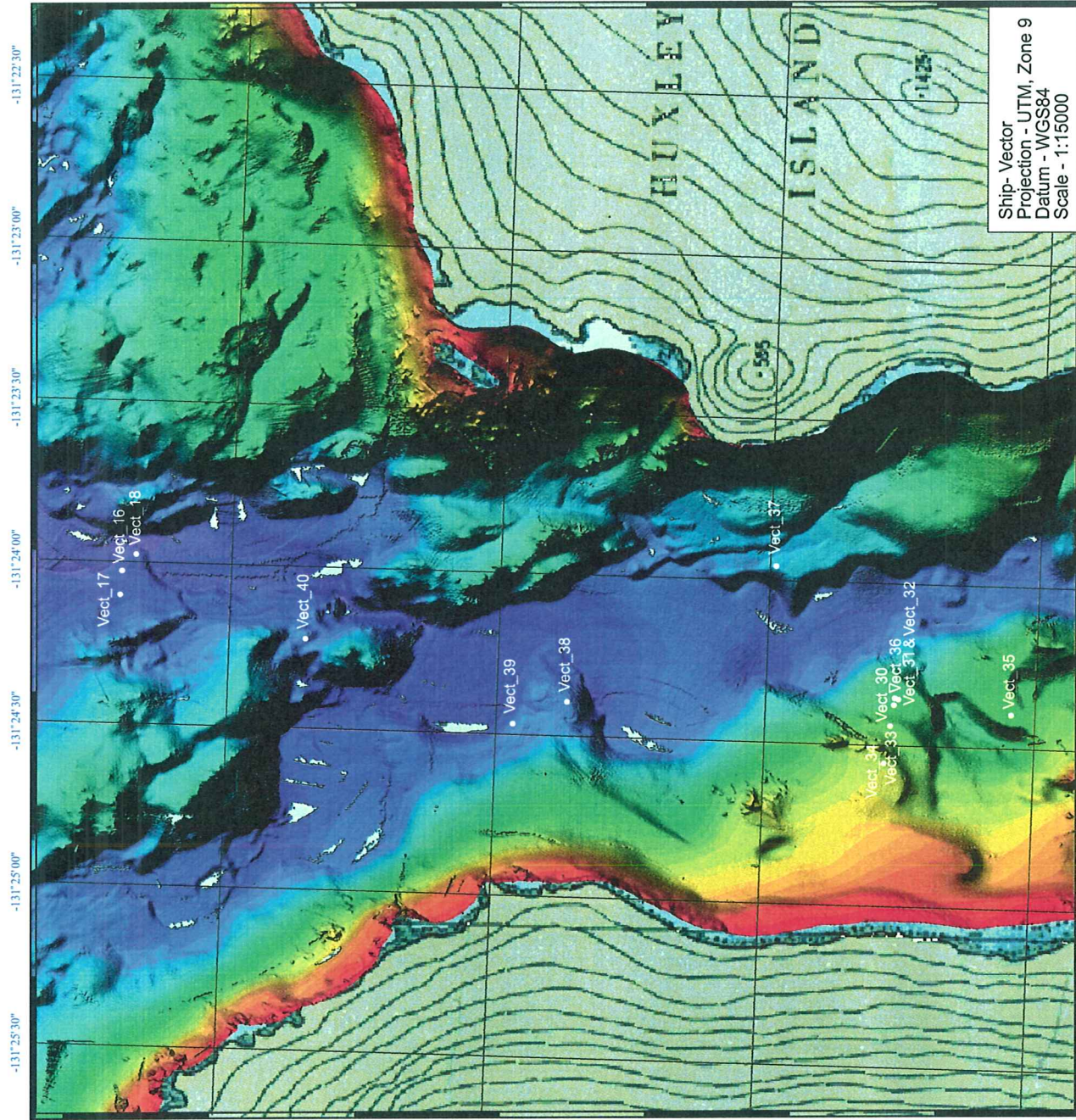
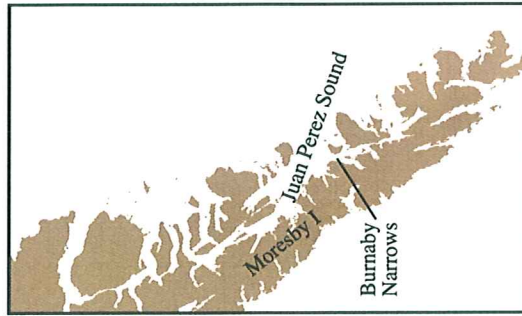


Figure 9



# Burnaby Narrows IKU Sample Sites Vector98 Cruise



Ship- Vector  
Projection - UTM, Zone 9  
Datum - WGS84  
Scale - 1:15000

5816338  
5816228

5815728

5815228

5814728

5814228

5813728

5813228

5812728m

-131°25'30" -131°25'00" -131°24'30" -131°24'00" -131°23'30" -131°23'00" -131°22'30"

52°28'00"

52°27'30"

52°27'00"

52°26'30"

335025

335525

336025

336525

337025

337525

338025

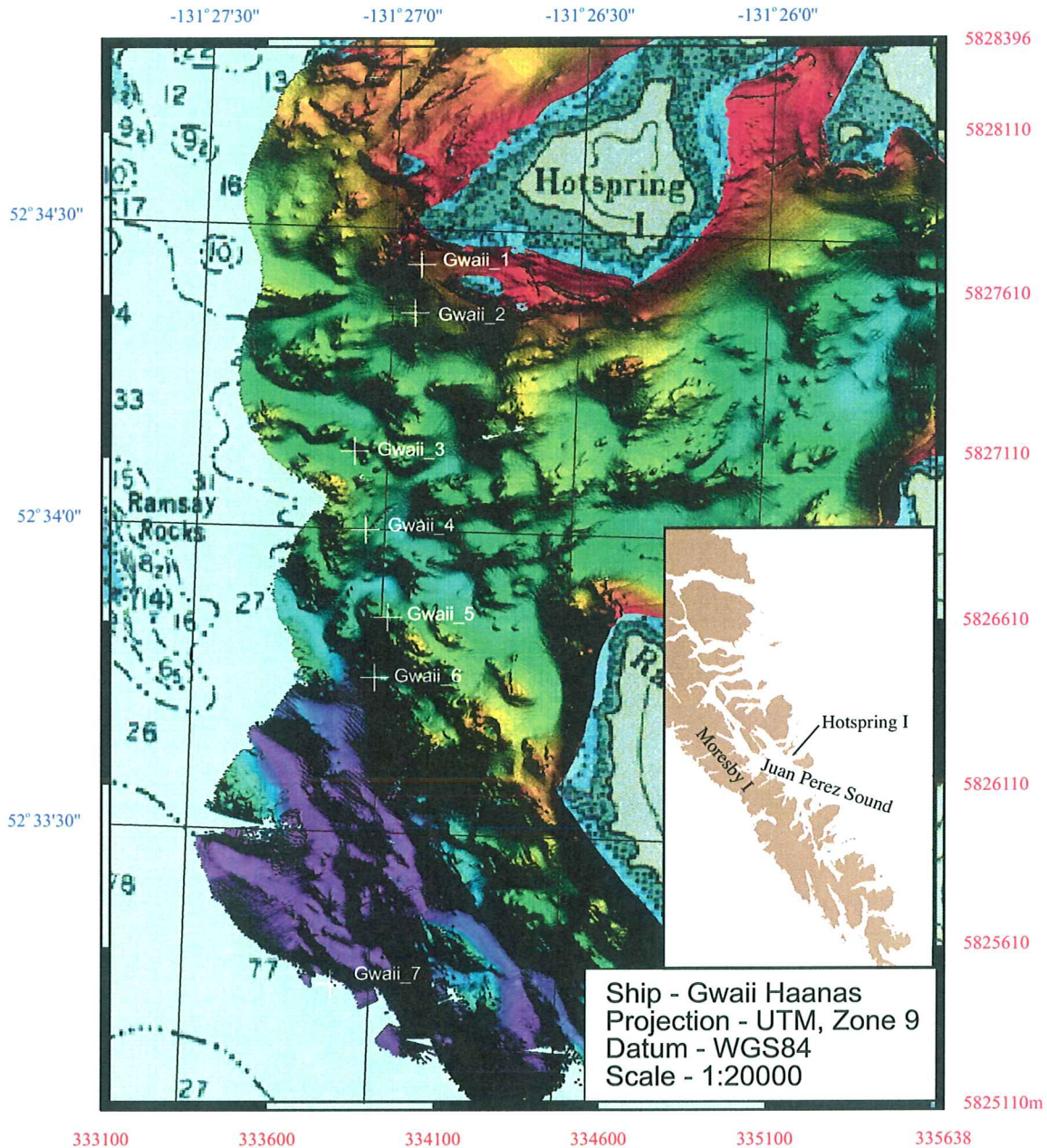
338525

338941

## Figure 10



# Hotspring Island Sample Sites GWAI98 Cruise



Natural Resources  
Canada

Ressources naturelles  
Canada

J. Harding  
hotspring\_samples.cdr  
Apr99

Figure 11

## Sample Inventory and Biological Description

# Vect98-01

NO IMAGE

Location: 52 29.26N 131 27.49W

Depth: 57.3m

Description: Silty sandy gravel with 50% angular and 50% rounded rock fragments

Biological Composition:

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Serpulidae	Crucigera	irregularis	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	2
Annelida	Polychaeta	Onuphidae		sp.	2
Annelida	Polychaeta	Serpulidae			1
Brachiopoda	Inarticulata	Craniidae	Crania	californica	1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	pallida	1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	7
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	4
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Veneridae	Humilaria	kennerlyi	1
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	9
Mollusca	Bivalvia	Tellinidae	Macoma	elimata	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	2
Sipuncula	Sipunculida	Golfingiidae	Golfingia	eremita	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	1

Vect98-02



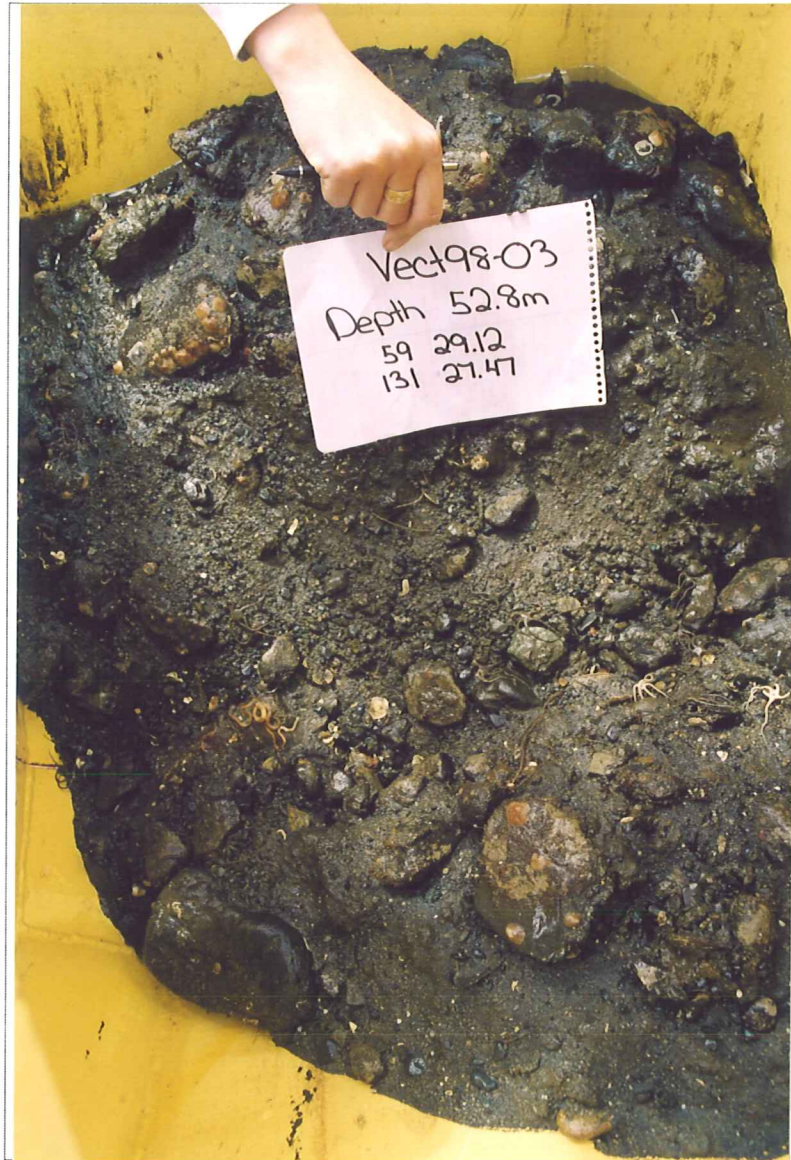
Location: 52 29.22N 131 27.51W

Depth: 55.4m

Description: Silty, sandy gravel with a gravel lag surface (mostly rounded, although some angular fragments) covering coarse sand with shell hash. Fairly well bioturbated.

Biological Composition: None

## Vect98-03



Location: 52 29.12N 131 27.47W

Depth: 52.8m

Description: Dominantly rounded cobble lag on top of sandy silty gravel.

Biological Composition: None



# Vect98-04



Location: 52 29.30N 131 27.63W

Depth: 57.6m

Description: Well developed cobble lag surface above silty, sandy, shelly gravel.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	41
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	1
Brachiopoda	Inarticulata	Craniidae	Crania	californica	14
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	6
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	pediparva	6
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	13
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	3
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	2
Nemertina	Anopla	Carinomidae	Carinoma	sp.	2
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	3
Urochordata	Ascidiacea	Pyuridae	Halocynthia	igaboja	1

# Vect98-05

NO IMAGE

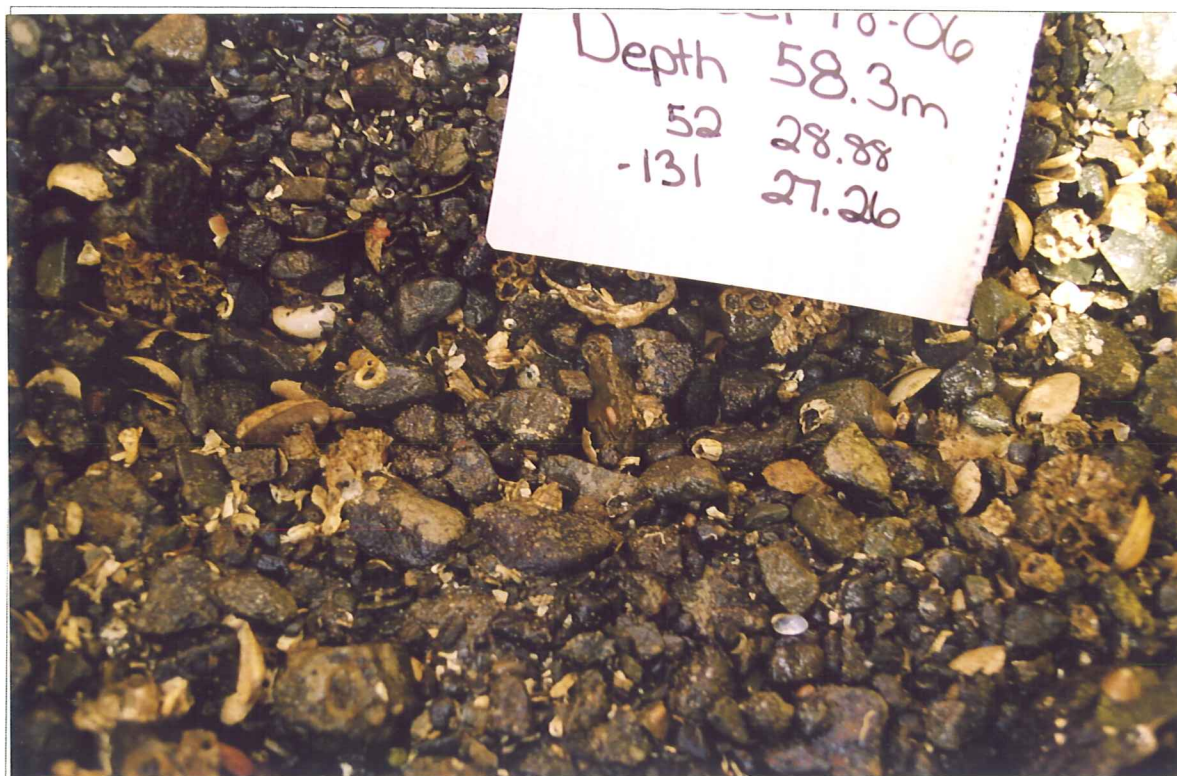
Location: 52 29.31N 131 27.68W

Depth: 57.6m

Description: Archaeological samples washed and screened no sample kept

Biological Composition: None

## Vect98-06



Location: 52 28.88N 131 27.26W

Depth: 58.3m

Description: Well developed lag surface above muddy, silty, sandy, gravel. Some of the cobbles were very angular.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	9
Annelida	Polychaeta				2
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	9
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	7
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	2
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	2
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	23
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	2
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	3
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	2
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	retiporosa	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	5
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	3
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	1

# Vect98-07



Location: 52 29.22N 131 23.70W

Depth: 58.3m

Description: Muddy, silty sand with a fine gravel lag.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Aphroditidae	Aphrodita	sp.	1
Annelida	Polychaeta	Sabellidae			1
Annelida	Polychaeta	Maldanidae			11
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	1
Mollusca	Bivalvia	Astartidae	Tridonta	alaskensis	2
Mollusca	Bivalvia	Nuculidae	Nuculana	fossa	2
Porifera	Hexactinellida	Rossellidae	Staurocalyptus	dowlingi	1

# Vect98-08



Location: 52 29.19N 131 23.66W

Depth: 123m

Description: Bioturbated, silty sand with lots of shells.

Biological Composition: for samples Vect98-08/09/10

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Maldanidae	Asychis	similis	4

## Vect98-09



Location: 52 29.22N 131 23.68W

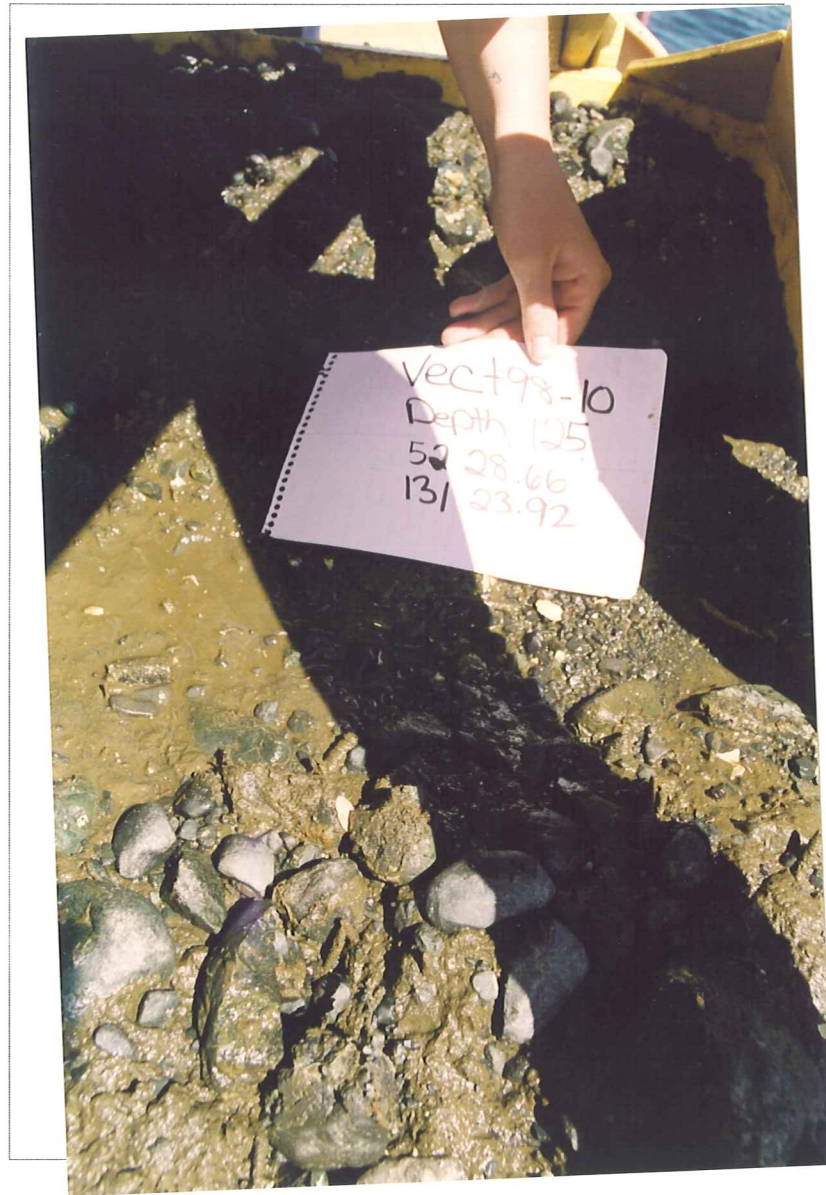
Depth: 125m

Description: Silty, sandy, gravel with a gravel lag. There is a sharp break near the base with a shell bed and shell fragments (dark gray).

Biological Composition: Vect98-08/09/10

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Maldanidae	Asychis	similis	4

# Vect98-10



Location: 52 29.22N 131 23.68W

Depth: 125m

Description: None

Biological Composition: for samples Vect98-08/09/10

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Annelida	Polychaeta	Maldanidae	Asychis	similis	4

# Vect98-11



Location: 52 28.66N 131 23.92W

Depth: 125m

Description: Gravel lag above silty, sandy gravel with some cobbles. There is a sharp contrast with dark gray, pebbly gravel

Biological Composition: Vect98-11/12

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Pectinariidae	Pectinaria	sp.	1
Annelida	Polychaeta	Opheliidae	Travisia	pupa	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	20
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	4
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	2
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	2
Nemertina	Anopla	Lineidae	Micrura	sp.	2
Porifera	Hexactinellida	Aphrocallistidae	Aphrocallistes	vastus	3



## Vect98-12



Location: 52 28.67N 131 23.89W

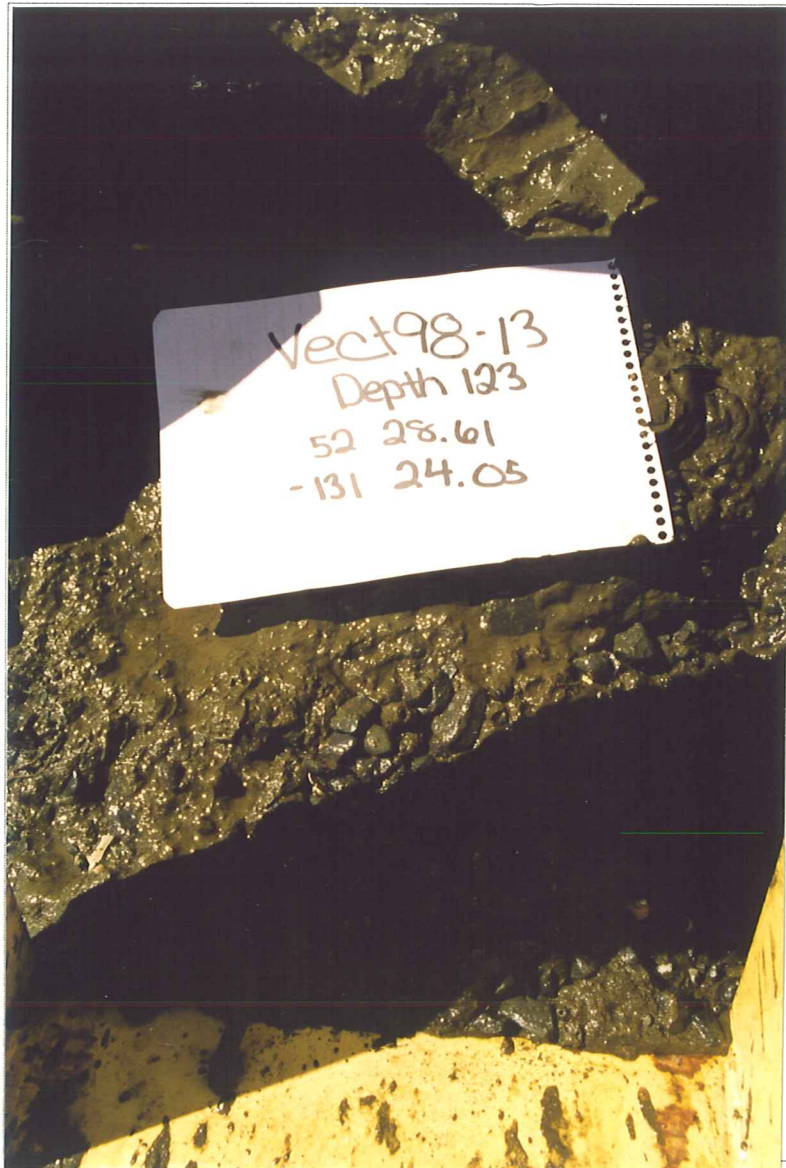
Depth: 125m

Description: Muddy sand with some gravel and shell fragments. Homogeneous throughout.  
Suspected Holocene deposit.

Biological Composition: Vect98-11/12

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Pectinariidae	Pectinaria	sp.	1
Annelida	Polychaeta	Opheliidae	Travisia	pupa	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	20
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	4
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	2
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	2
Nemertina	Anopla	Lineidae	Micrura	sp.	2
Porifera	Hexactinellida	Aphrocallistidae	Aphrocallistes	vastus	3

# Vect98-13



Location: 52 28.61N 131 24.05W

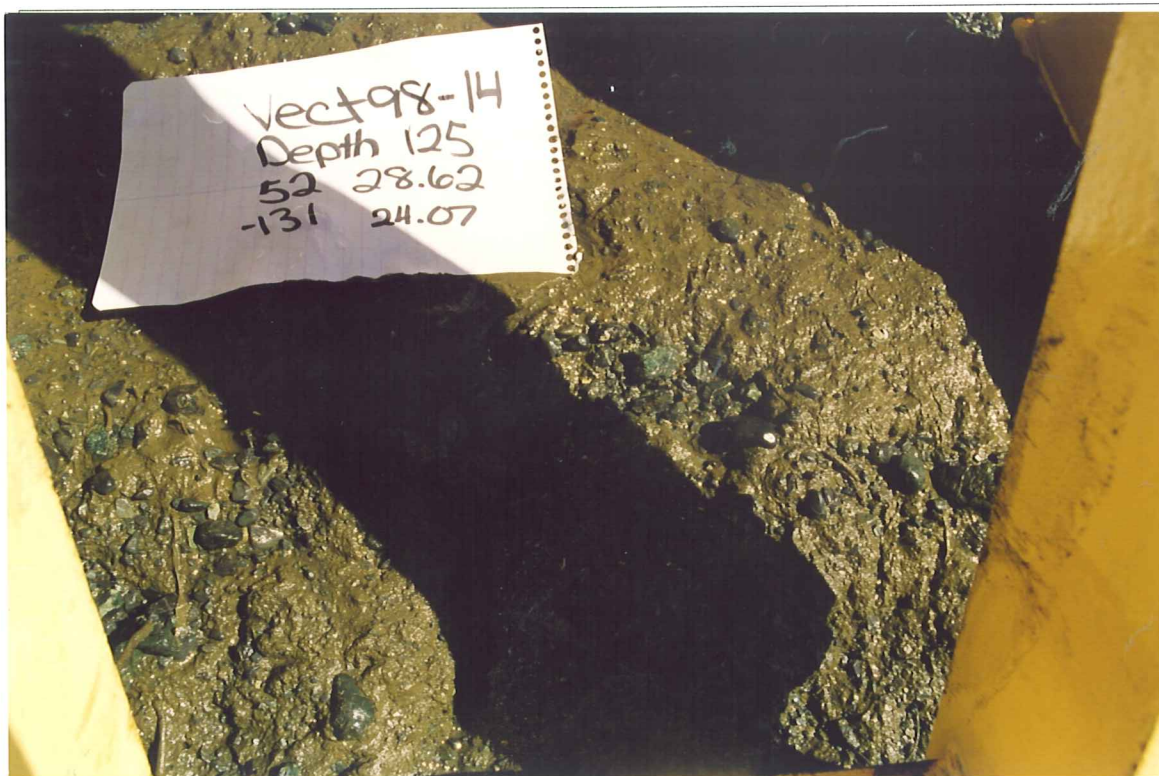
Depth: 123m

Description: Massive, muddy gravel with some shells.

Biological Composition: for samples Vect98-13/14/15

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	19
Annelida	Polychaeta	Polynoidae			1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	3
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	6
Nemertina	Anopla	Lineidae	Micrura	sp.	5

# Vect98-14



Location: 52 28.62N 131 24.07 W

Depth: 125m

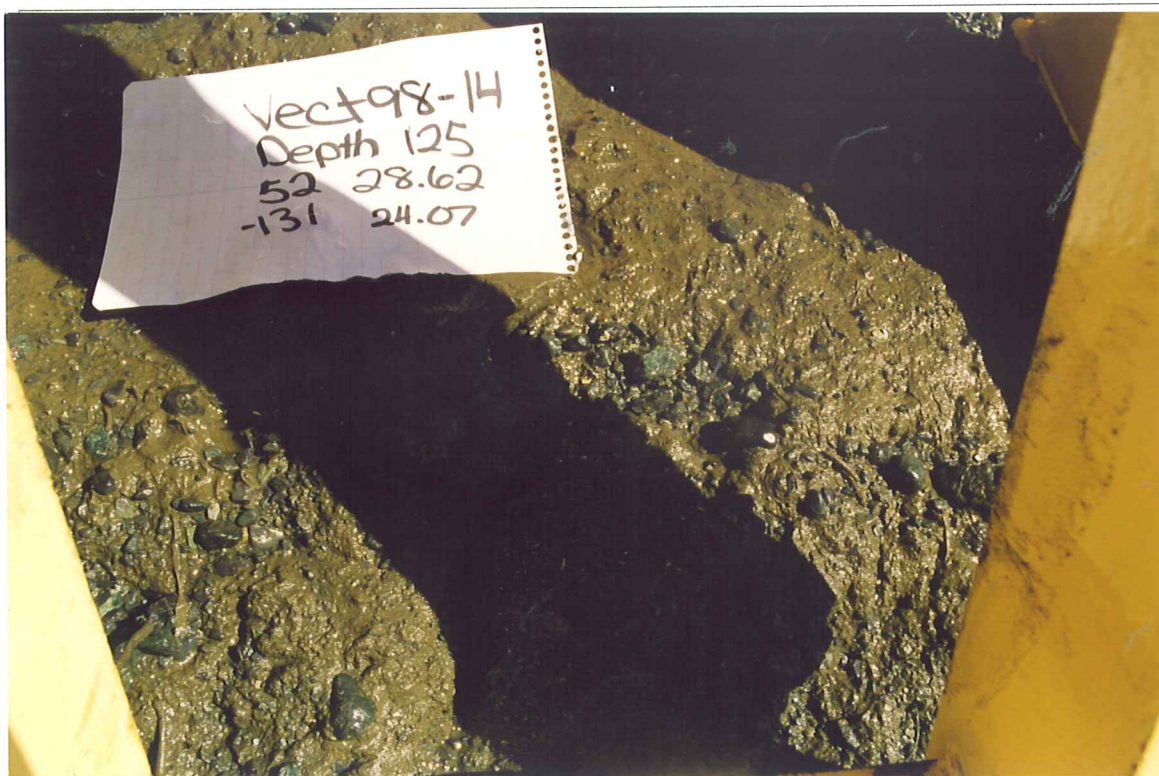
Description: Overlay of greenish sandy, silty, mud over a dark gravel (fluvial?) with shells

Biological Composition: for samples Vect98-13/14/15

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	19
Annelida	Polychaeta	Polynoidae			1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	3
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	6
Nemertina	Anopla	Lineidae	Micrura	sp.	5

\*\* Picture 1 of 2

# Vect98-14



Location: 52 28.62N 131 24.07 W

Depth: 125m

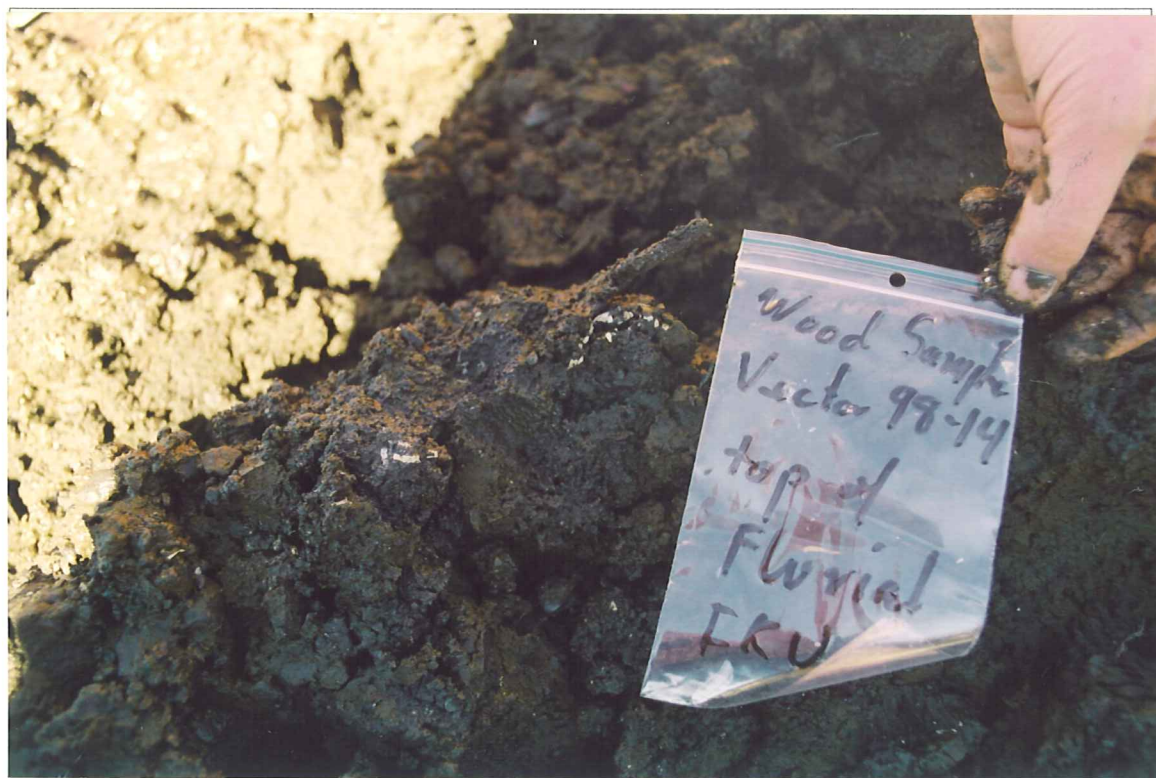
Description: Overlay of greenish sandy, silty, mud over a dark gravel (fluvial?) with shells

Biological Composition: for samples Vect98-13/14/15

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	19
Annelida	Polychaeta	Polynoidae			1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	3
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	6
Nemertina	Anopla	Lineidae	Micrura	sp.	5

\*\* Picture 1 of 2

## Vect98-14



Location: 52 28.62N 131 24.07 W

Depth: 125m

Description: Overlay of greenish sandy, silty, mud over a dark gravel (fluvial?) with shells

Biological Composition: for samples Vect98-13/14/15

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	19
Annelida	Polychaeta	Polynoidae			1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	3
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	6
Nemertina	Anopla	Lineidae	Micrura	sp.	5

\*\* Picture 2 of 2

## Vect98-15



Location: 52 28.60N 131 24.04 W

Depth: 124m

Description: Muddy gravel with consistent bioturbated underlying fluvial gravel

Biological Composition: for samples Vect98-13/14/15

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	Similis	19
Annelida	Polychaeta	Polynoidae			1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	Occidentalis	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	Latifrons	1
Echiura	Echiurida	Echiuridae	Arhynchite	Californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	Subdiaphana	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	Annulata	3
Mollusca	Scaphopoda	Dentaliidae	Dentalium	Rectius	6
Nemertina	Anopla	Lineidae	Micrura	sp.	5

# Vect98-16



Location: 52 28.20N 131 24.03 W

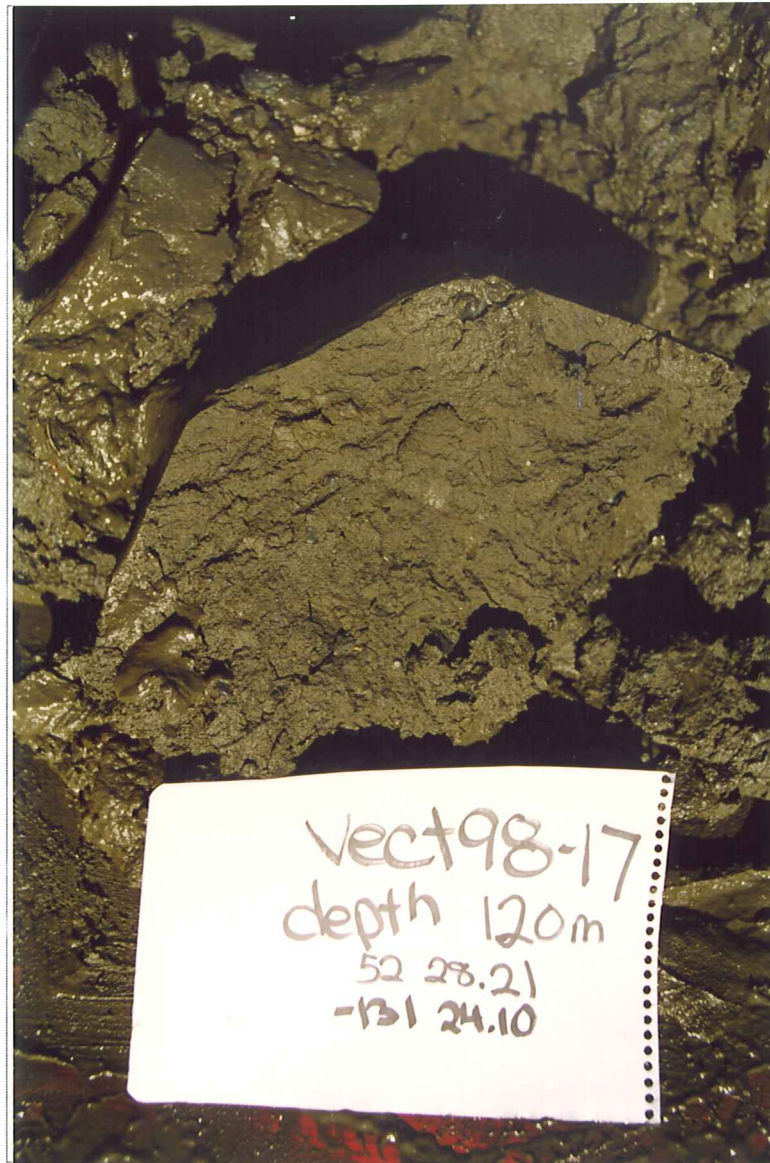
Depth: 120m

Description: Massive, muddy gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Opheliidae	Travisia	pupa	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	6
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	4
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	1
Nemertina	Anopla	Lineidae	Micrura	sp.	6
Nemertina	Enopla			a	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1

# Vect98-17



Location: 52 28.21N 131 24.10W

Depth: 120

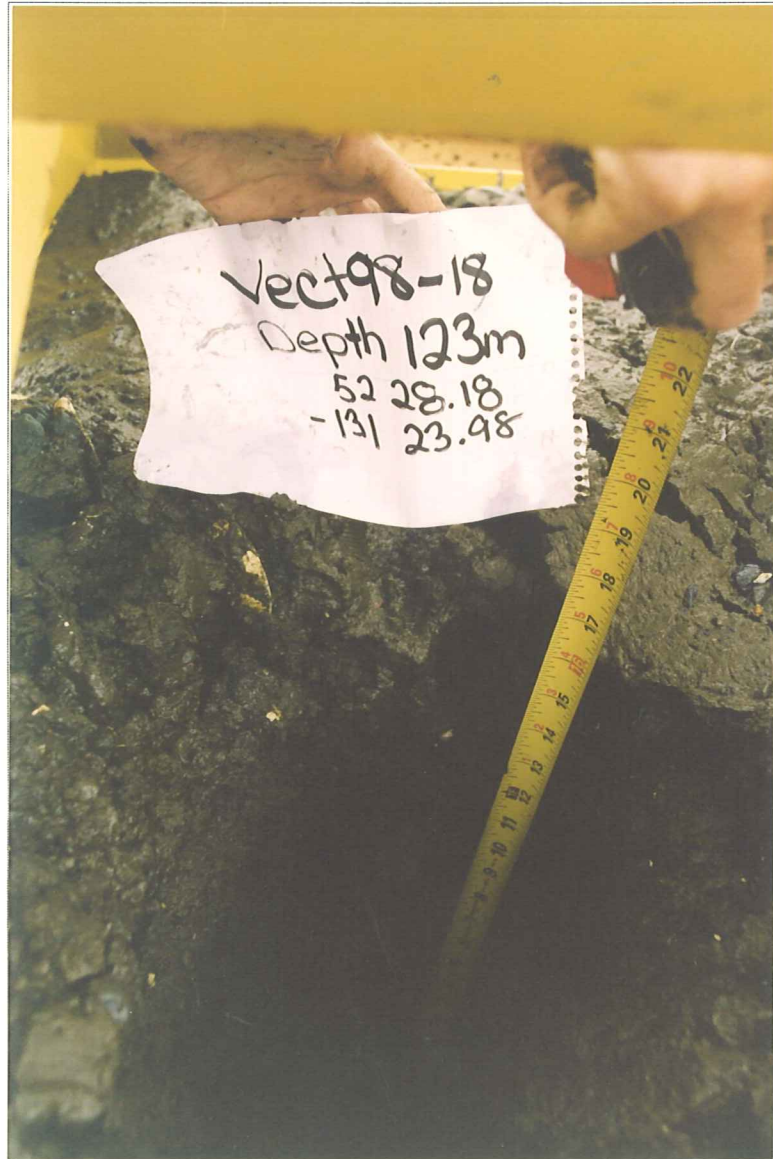
Description: Massive, muddy gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Opheliidae	Travisia	pupa	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	9
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	7
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	2



# Vect98-18



Location: 52 28.18N 131 23.98W

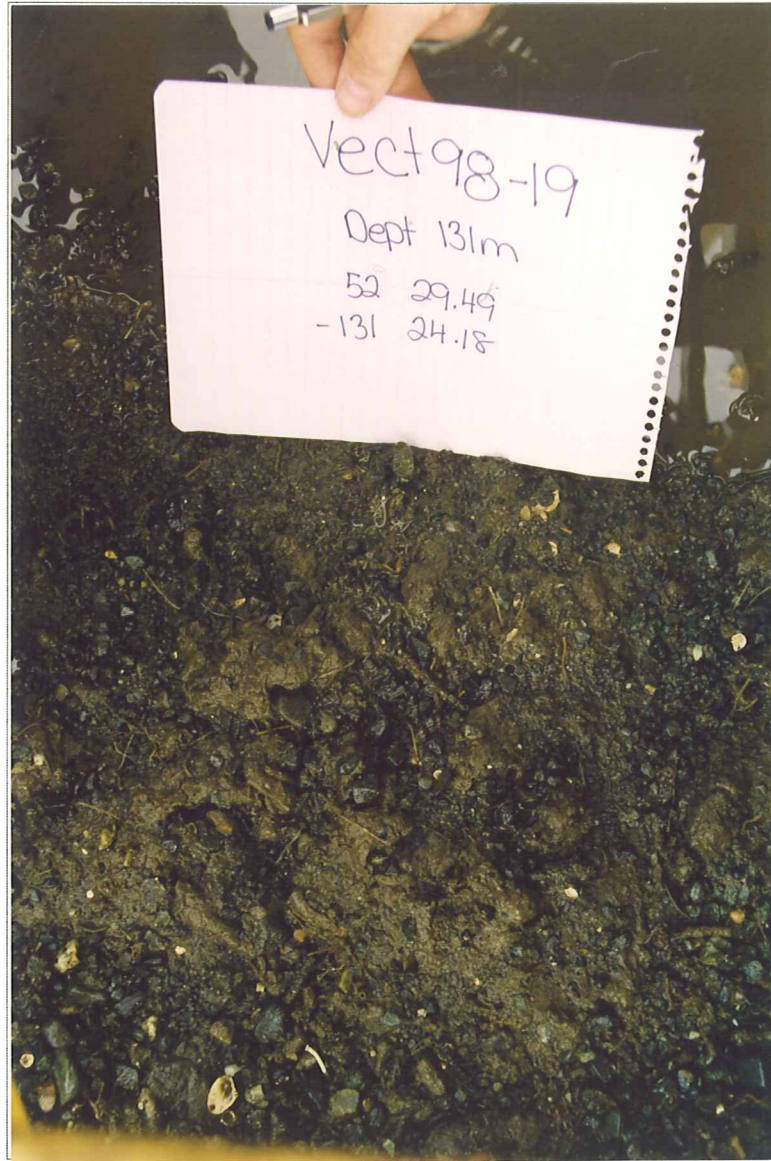
Depth: 123m

Description: Massive, muddy, sandy gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Pectinariidae	Pectinaria	granulata	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	17
Annelida	Polychaeta	Onuphidae			3
Annelida	Polychaeta	Terebellidae			6

# Vect98-19



Location: 52 29.49N 131 24.18W

Depth: 131m

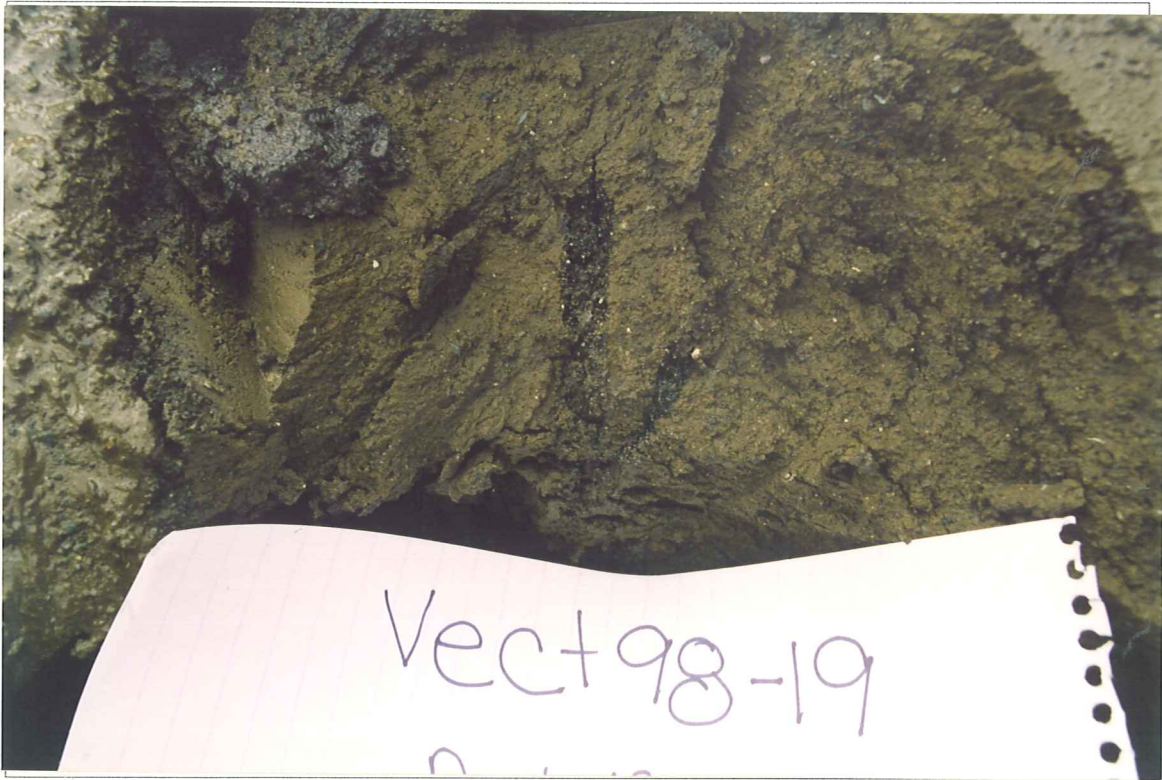
Description: Muddy, sandy gravel with heavy bioturbation. Pipes and patches of underlying gray fluvial(?) material

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Terebellidae			2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	2
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	macraspis	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	5
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	9
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifolsum	2

\*\* Picture 1 of 2

# Vect98-19



Location: 52 29.49N 131 24.18W

Depth: 131m

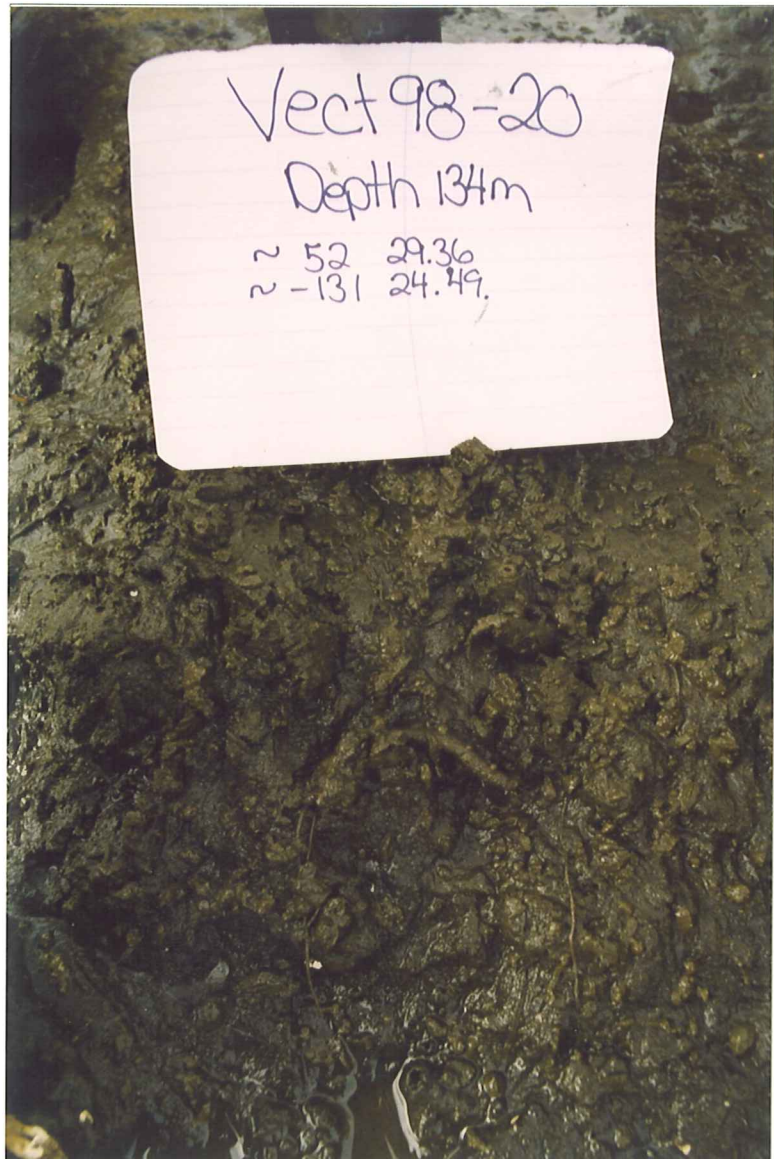
Description: Muddy, sandy gravel that is heavy bioturbated. Contains pipes and patches of underlying fluvial(?) material

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Terebellidae			2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	2
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	macraspis	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	5
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	9
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifolsum	2

\*\* Picture 2 of 2

## Vect98-20



Location: 52 29.36N 131 24.49W

Depth: 134m

Description: Upper 30cm surface layer is muddy, silty sand and shells with bioturbated marine clay. The lower portion is green massive clay with in-situ shells.

Biological Composition: None

\*\* Picture 1 of 2

# Vect98-20



Location: 52 29.36N 131 24.49W

Depth: 134m

Description: Upper 30cm surface layer is muddy, silty sand and shells with bioturbated marine clay. The lower portion is green massive clay with in-situ shells.

Biological Composition: None

\*\* Picture 2 of 2

# Vect98-21



Location: 52 29.51N 131 24.20W

Depth: 130m

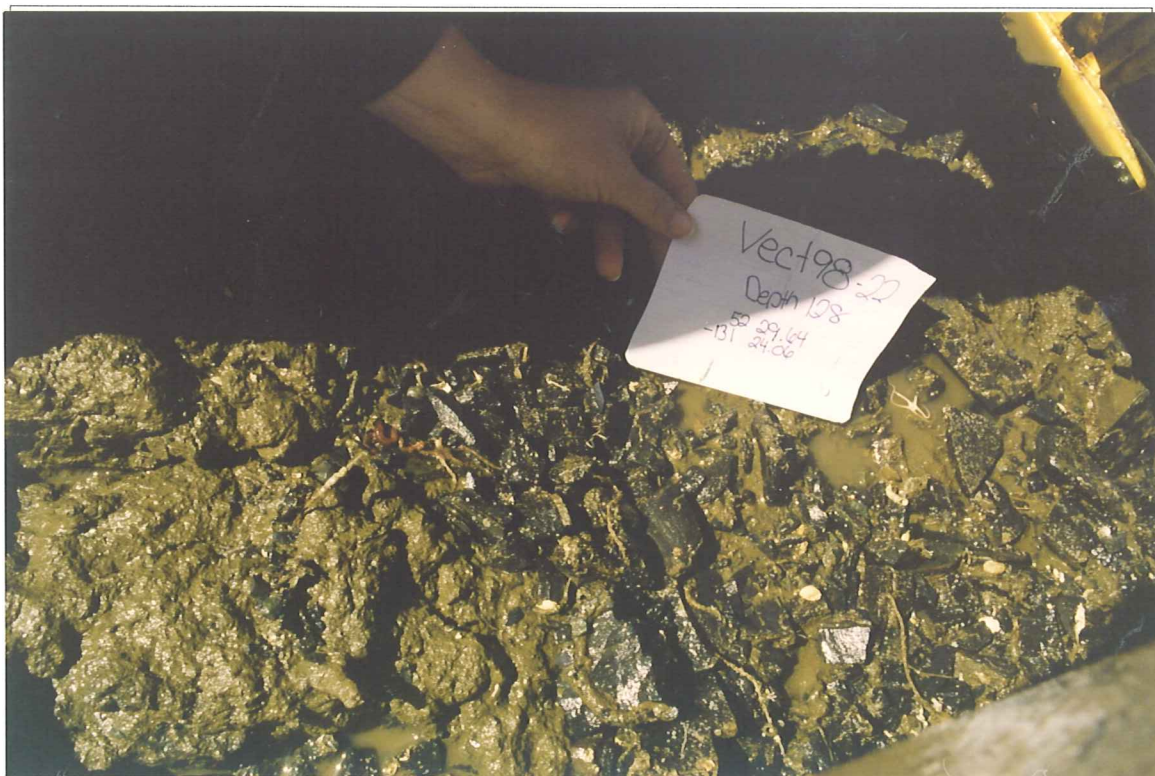
Description: Greenish muddy gravel on top with a gray gravel (little to no fine matrix) beneath.

Abundant intertidal shell

## Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Malacostraca	Diogenidae	Paguristes	turgidus	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Echinodermata	Holothuroidea	Phyllophoridae	Pentamera	rigida	2
Echinodermata	Holothuroidea	Phyllophoridae	Thyone	benti	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	3
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2

## Vect98-22



Location: 52 29.64N 131 24.06W

Depth: 128m

Description: Well developed completely angular pebble to cobble surface lag. Beneath is muddy gravel with lens of coarse gravel. Abundant shells (intertidal)

Biological Composition: composition of Vect98-22/23

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Chaetopteridae			many
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	1
Arthropoda	Malacostraca	Majidae	Chorilia	longipes	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	18
Cnidaria	Hydrozoa	Sertulariidae	Thuiaria	tenera	2
Echinodermata	Holothuroidea	Psolidae	Psolidum	bidiscum	2
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	25
Ectoprocta	Stenolaemata	Microporellidae			many
Ectoprocta	Stenolaemata	Cribilinidae	Cribilina	annulata	2
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	eremita	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	5
Urochordata	Asciacea	Pyuridae	Pyura	haustor	1

Picture 1 of 2

## Vect98-22



Location: 52 29.64N 131 24.06W

Depth: 128m

Description: Well developed completely angular pebble to cobble surface lag. Beneath is muddy gravel with lens of coarse gravel. Abundant shells (intertidal)

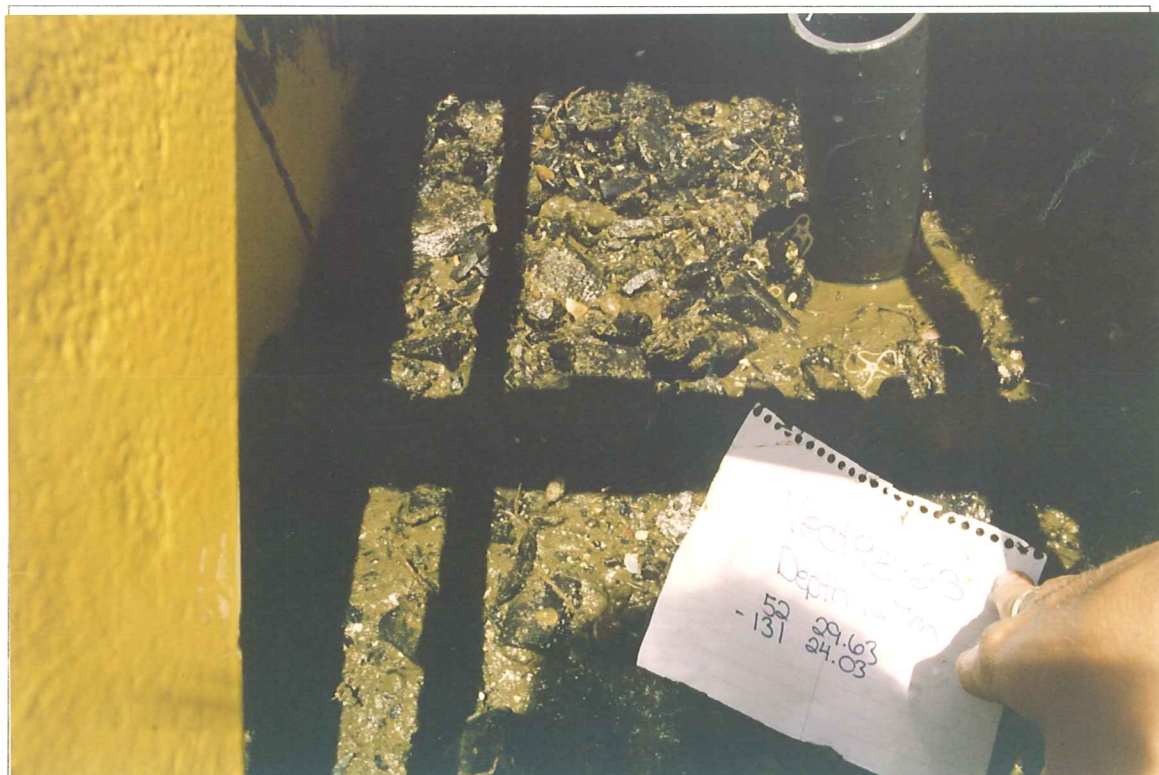
Biological Composition: composition of Vect98-22/23

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Chaetopteridae			many
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	1
Arthropoda	Malacostraca	Majidae	Chorilia	longipes	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	18
Cnidaria	Hydrozoa	Sertulariidae	Thuiaria	tenera	2
Echinodermata	Holothuroidea	Psolidae	Psolidum	bidiscum	2
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	25
Ectoprocta	Stenolaemata	Microporellidae			many
Ectoprocta	Stenolaemata	Cribilinidae	Cribilina	annulata	2
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	eremita	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	5
Urochordata	Ascidiacea	Pyuridae	Pyura	haustor	1

Picture 2 of 2



## Vect98-23



Location: 52 29.63N 131 24.03W

Depth: 127m

Description: Angular gravel and cobble lag of volcanic material overlaying a greenish, muddy, sandy gravel.

Biological Composition: composition of Vect98-22/23

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Chaetopteridae			many
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	1
Arthropoda	Malacostraca	Majidae	Chorilia	longipes	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	18
Cnidaria	Hydrozoa	Sertulariidae	Thuiaria	tenera	2
Echinodermata	Holothuroidea	Psolidae	Psolidum	bidiscum	2
Echinodermata	Holothuroidea	Phyllophoridae	Thyone	benti	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	25
Ectoprocta	Stenolaemata	Microporellidae			many
Ectoprocta	Stenolaemata	Cribilinidae	Cribilina	annulata	2
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	eremita	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	5
Urochordata	Ascidiacea	Pyuridae	Pyura	haustor	1

Picture 1 of 2

## Vect98-23



Location: 52 29.63N 131 24.03W

Depth: 127m

Description: Angular gravel and cobble lag of volcanic material overlaying a greenish, muddy, sandy gravel.

Biological Composition: composition of Vect98-22/23

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Chaetopteridae			many
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	1
Arthropoda	Malacostraca	Majidae	Chorilia	longipes	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	18
Cnidaria	Hydrozoa	Sertulariidae	Thuiaria	tenera	2
Echinodermata	Holothuroidea	Psolidae	Psolidum	bidiscum	2
Echinodermata	Holothuroidea	Phyllophoridae	Thyone	benti	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	25
Ectoprocta	Stenolaemata	Microporellidae			many
Ectoprocta	Stenolaemata	Cribilinidae	Cribilina	annulata	2
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	eremita	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	5
Urochordata	Ascidiacea	Pyuridae	Pyura	haustor	1

Picture 2 of 2

# Vect98-24



Location: 52 29.59N 131 24.20W

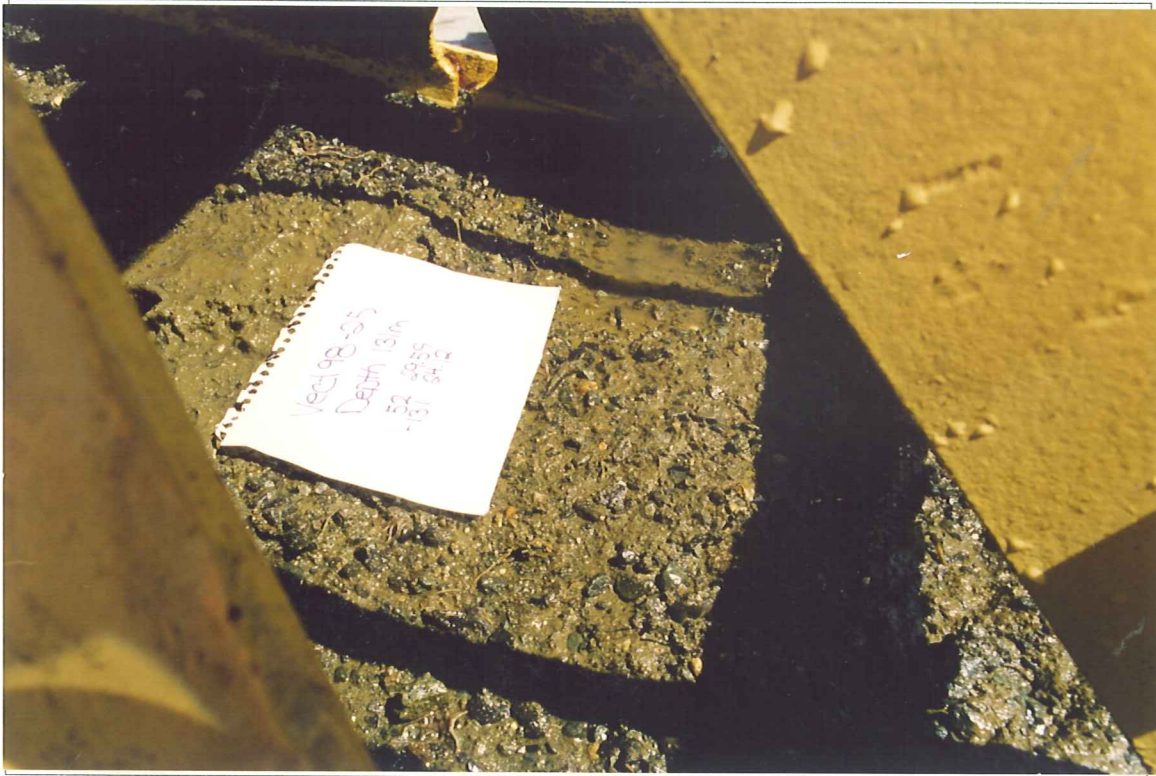
Depth: 137m

Description: Coarse sand to fine gravel with no organics that is overlain by green sandy silt.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Maldanidae	Asychis	similis	6
Annelida	Polychaeta	Serpulidae			1
Annelida	Polychaeta	Onuphidae			1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	1
Echinodermata	Holothuroidea	Phyllophoridae	Pentamera	rigida	1
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	strongylopax	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	3
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2

## Vect98-25



Location: 52 29.59N 131 24.12W

Depth: 131m

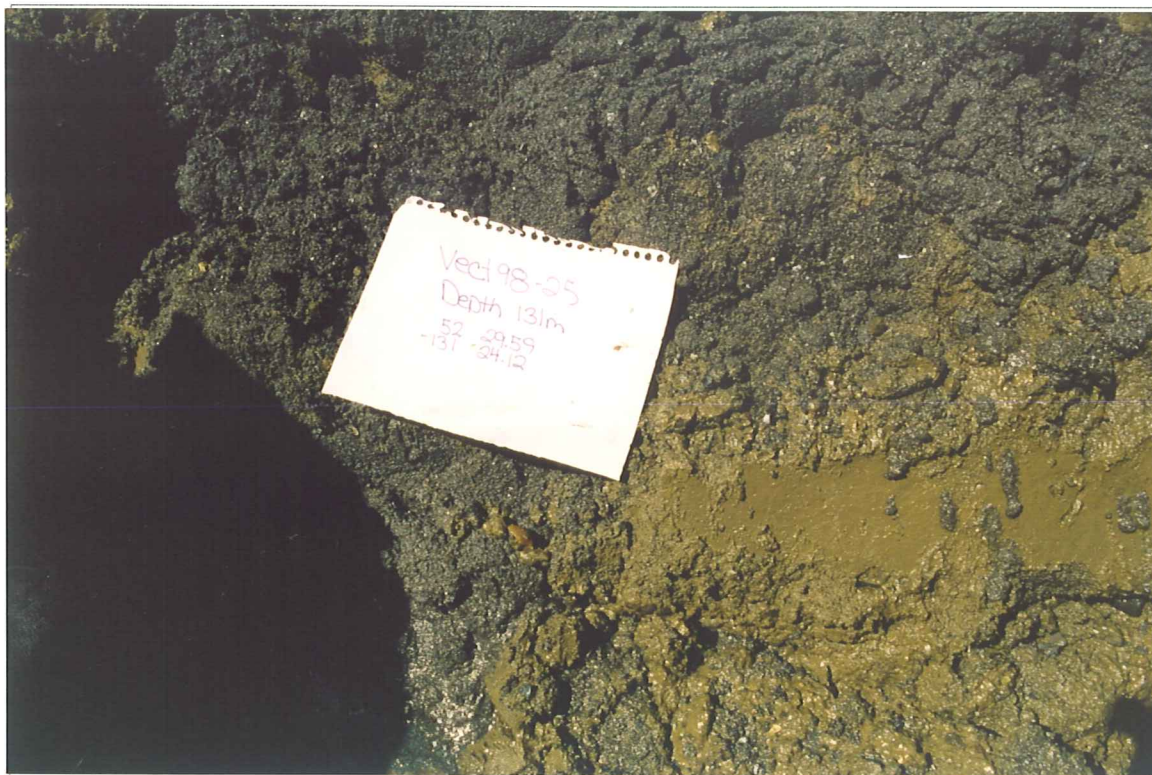
Description: Surface lag of coarse sand to fine gravel. Upper portion green, muddy, sandy gravel with gray/black sand unit beneath with few organics

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Sabellidae			6
Annelida	Polychaeta	Serpulidae			1
Annelida	Polychaeta	Maldanidae	Asychis	similis	2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	5
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	2
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	3
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	macraspis	2
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	2
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	5
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	3
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1
Porifera	Demospongiae				5
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1

Picture 1 of 2

## Vect98-25



Location: 52 29.59N 131 24.12W

Depth: 131m

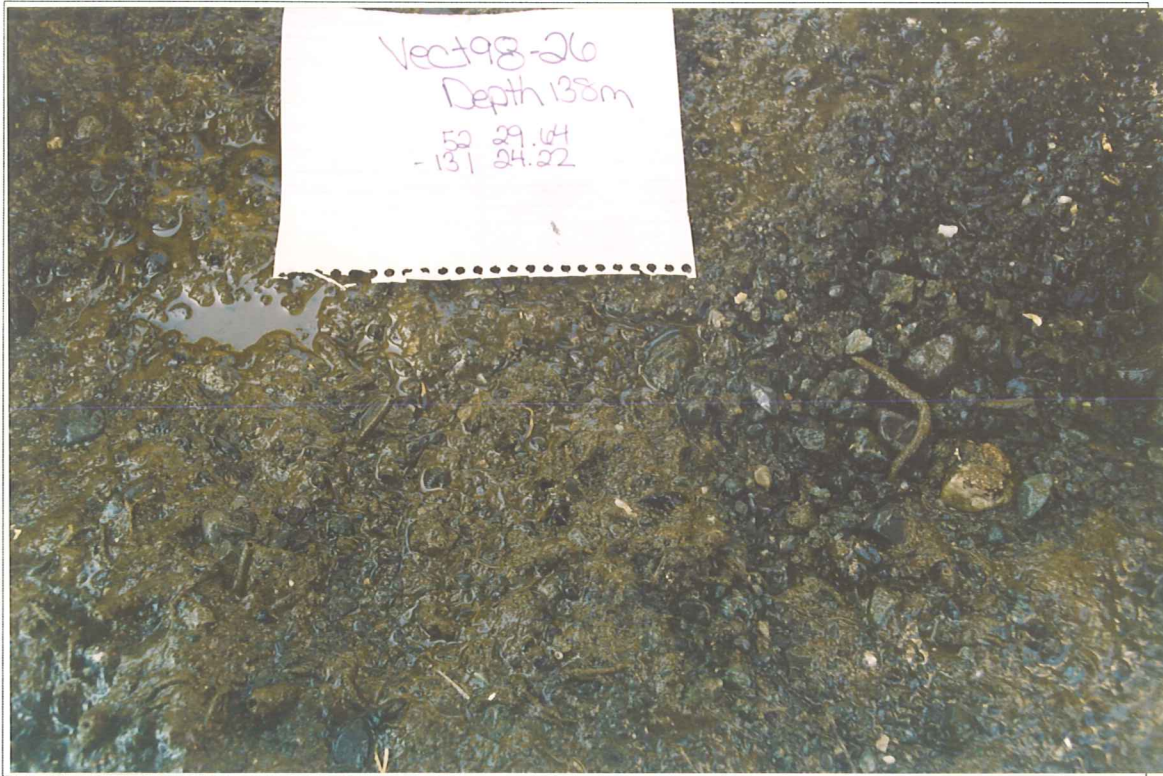
Description: Surface lag of coarse sand to fine gravel. Upper portion green, muddy, sandy gravel with gray/black sand unit beneath with few organics

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Sabellidae			6
Annelida	Polychaeta	Serpulidae			1
Annelida	Polychaeta	Maldanidae	Asychis	similis	2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	5
Echinodermata	Holothuroidea	Phyllophoridae	Thyone	benti	2
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	3
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	macraspis	2
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	2
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	5
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	3
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1
Porifera	Demospongiae				5
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1

Picture 2 of 2

# Vect98-26



Location: 52 29.64N 131 24.22W

Depth: 138m

Description: Approximately 30cm of heavily bioturbated surface greenish, muddy, sandy, gravel that overlays approximately 20cm of gray/black sandy gravel

Biological Composition:

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Annelida	Polychaeta	Maldanidae	Asychis	similis	13
Arthropoda	Malacostraca	Axiidae	Axiopsis	spinulicauda	2
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2

# Vect98-27

NO IMAGE

Location: 52 29.22N 131 23.78W

Depth: 122m

Description: None – Saved only shell material – Northern Horse mussel has a depth range of up to 200m

Biological Composition:

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Maldanidae	Asychis	similis	11
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	rigida	2
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	macraspis	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	1

# Vect98-28



Location: 52 29.23N 131 23.72W

Depth: 129m

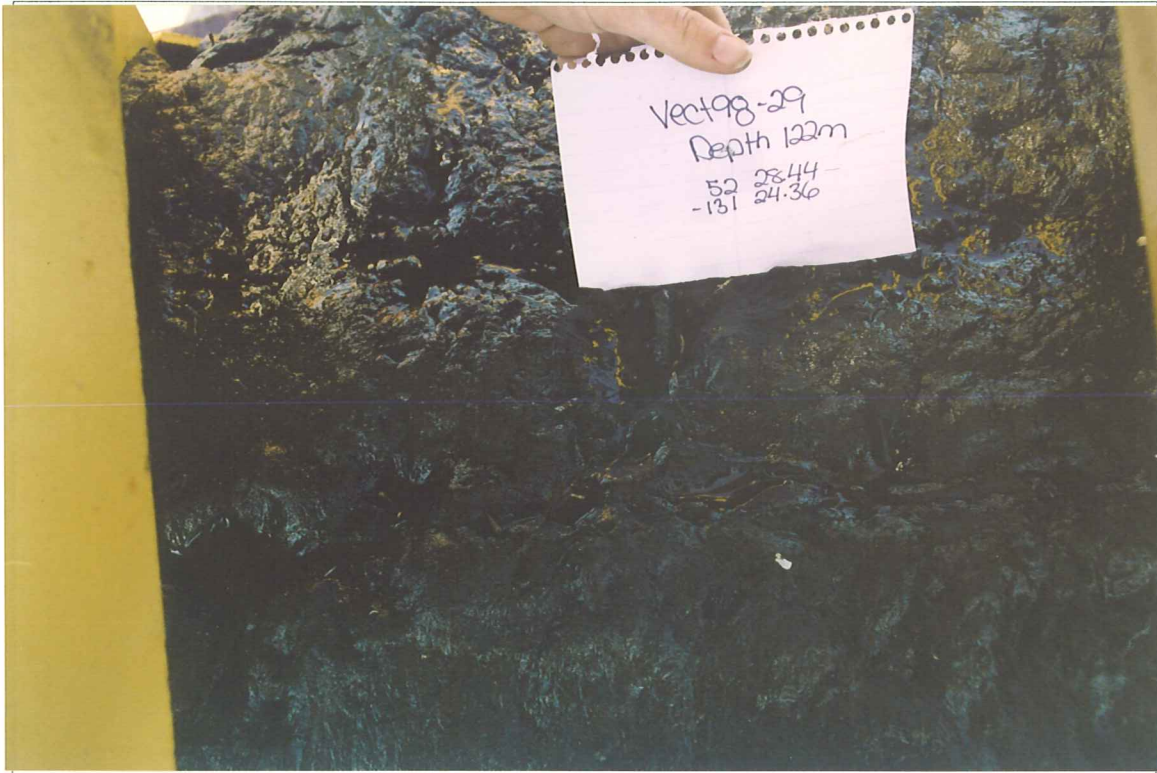
Description: Organic rich, muddy, sandy, gravel.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Opheliidae	Travisia	pupa	1
Annelida	Polychaeta	Maldanidae			1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	1
Porifera	Hexactinellida	Aphrocallistidae	Aphrocallistes	vastus	1



## Vect98-29



Location: 52 28.44N 131 24.36W

Depth: 122m

Description: Greenish, muddy silt with some rounded gravel and shell fragments

Biological Composition: None

# Vect98-30

NO IMAGE

Location: 52 26.76N 131 24.37W

Depth: 65m

Description: Green, silty sand with a minor gravel lag on top. Some shell hash.

Biological Composition: composition of Vect98-30/31/32

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Terebellidae			3
Arthropoda	Malacostraca	Aegidae	Rocinela	bellicept	2
Arthropoda	Malacostraca	Cancridae	Cancer	branneri	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	1
Chordata	Actinopterygii	Ptilichthys	Ptilichthys	goodei	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echinodermata	Holothuroidea	Synaptidae	Leptosynapta	cf galliennii	4
Echinodermata	Holothuroidea	Phyllophoridae	Pentamera	rigida	8
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophaira	lutkeni	13
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	5
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	2
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	25
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1
Mollusca	Bivalvia	Tellinidae	Tellina	nuculoides	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	1
Nemertina	Enopla				1

# Vect98-31



Location: 52 26.75N 131 24.36W

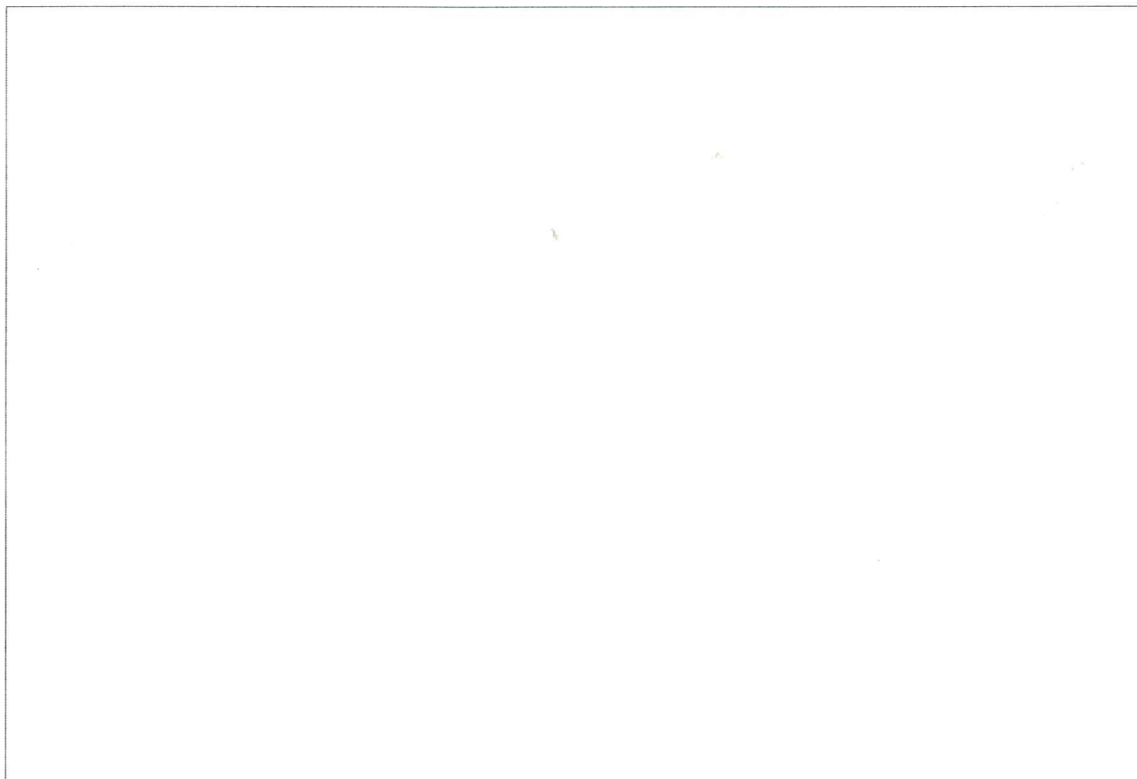
Depth: 65m

Description: Surface of a fine gravel lag with a few rounded cobbles underlain by green, sandy silt. There is a trace of sand at the bottom. Shell hash throughout.

Biological Composition: composition of Vect98-30/31/32

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Terebellidae			3
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	2
Arthropoda	Malacostraca	Cancridae	Cancer	branneri	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	1
Chordata	Actinopterygii	Ptilichthys	Ptilichthys	goodei	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echinodermata	Holothuroidea	Synaptidae	Leptosynapta	cf galliennii	4
Echinodermata	Holothuroidea	Phyllophoridae	Pentamera	rigida	8
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophura	lutkeni	13
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	5
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	2
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	25
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1
Mollusca	Bivalvia	Tellinidae	Tellina	nuculoides	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	1
Nemertina	Enopla				1

# Vect98-32



Location: 52 26.75N 131 24.36W

Depth: 65.7m

Description: Minor gravel lag overlaying silty sand. At the bottom there is coarse sand and fine subrounded to rounded gravel

Biological Composition: composition of Vect98-30/31/32

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Terebellidae			3
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	2
Arthropoda	Malacostraca	Cancridae	Cancer	branneri	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	1
Chordata	Actinopterygii	Ptilichthys	Ptilichthys	goodei	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Echinodermata	Holothuroidea	Synaptidae	Leptosynapta	cf galliennii	4
Echinodermata	Holothuroidea	Phyllophoridae	Pentamera	rigida	8
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophura	lutkeni	13
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	5
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	2
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	25
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1
Mollusca	Bivalvia	Tellinidae	Tellina	nuculoides	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	1
Nemertina	Enopla				1

# Vect98-33



Location: 52 26.77N 131 24.44W

Depth: 50.0m

Description: Gravel lag with some rounded to subrounded cobbles. Beneath is green, silty sand with overlaying fine gravel.

Biological Composition:

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	3
Arthropoda	Malacostraca	Diogenidae	Paguristes	turgidus	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Ectoprocta	Stenolaemata	Diastoporidae	Diaperoecia	californica	5
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	2
Mollusca	Gastropoda	Calyptraeidae	Calyptraea	fastigiata	1

# Vect98-34



Location: 52 26.77N 131 24.56W

Depth: 35m

Description: No gravel lag, although there are a few subangular cobbles with a silty sand and then shell hash beneath.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	1
Arthropoda	Malacostraca	Diogenidae	Paguristes	turgidus	1
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	1
Brachiopoda	Articulata	Laqueidae	Terebratalia	transversa	1
Cnidaria	Anthozoa	Dendrophylliidae	Balanophyllia	elegans	1
Cnidaria	Anthozoa	Caryophylliidae	Paracyathus	stearnsii	11
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	1
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	pediparva	2
Ectoprocta	Gymnolaemata	Microporidae	Micropora	coriacea	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	1
Mollusca	Bivalvia	Veneridae	Humilaria	kennerlyi	05
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	8
Mollusca	Bivalvia	Mytilidae	Megacrenella	columbiana	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	8
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	3
Mollusca	Gastropoda	Naticidae	Natica	clausa	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	2

Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	4
Porifera	Hexactinellida	Aphrocallistidae	Aphrocallistes	vastus	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	3
Urochordata	Asciacea	Corellidae	Chelyosoma	columbianum	2

# Vect98-35



Location: 52 26.54N 131 24.40W

Depth: 55.4m

Description: Silty coarse sand with dark lithologies, bioturbated throughout.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Sabellidae			1
Annelida	Polychaeta	Terebellidae			2
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	sp.	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echiura	Echiurida	Echiuridae	Arhynchite	sp.	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	7
Mollusca	Bivalvia	Mytilidae	Megacrenella	columbiana	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2



Mollusca	Gastropoda	Calyptraeidae	Calyptraea	fastigiata	2
Mollusca	Gastropoda	Naticidae	Natica	clausa	1

# Vect98-36



Location: 52 26.76N 131 24.35W

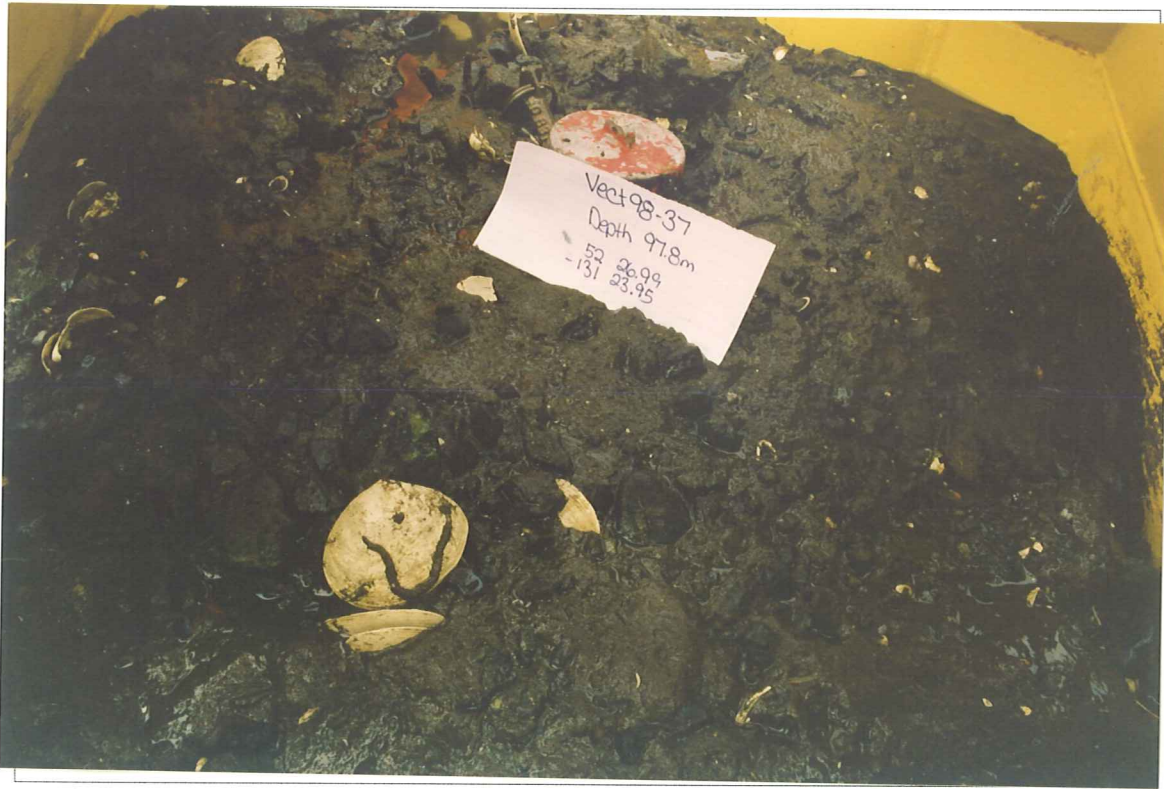
Depth: 65.4m

Description: Silty, sandy, gravel with a cobble lag

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Cirripedia	Balanidae	Balanus	rostratus	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	4
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Tellinidae	Macoma	elimata	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1

# Vect98-37



Location: 52 26.99N 131 23.95W

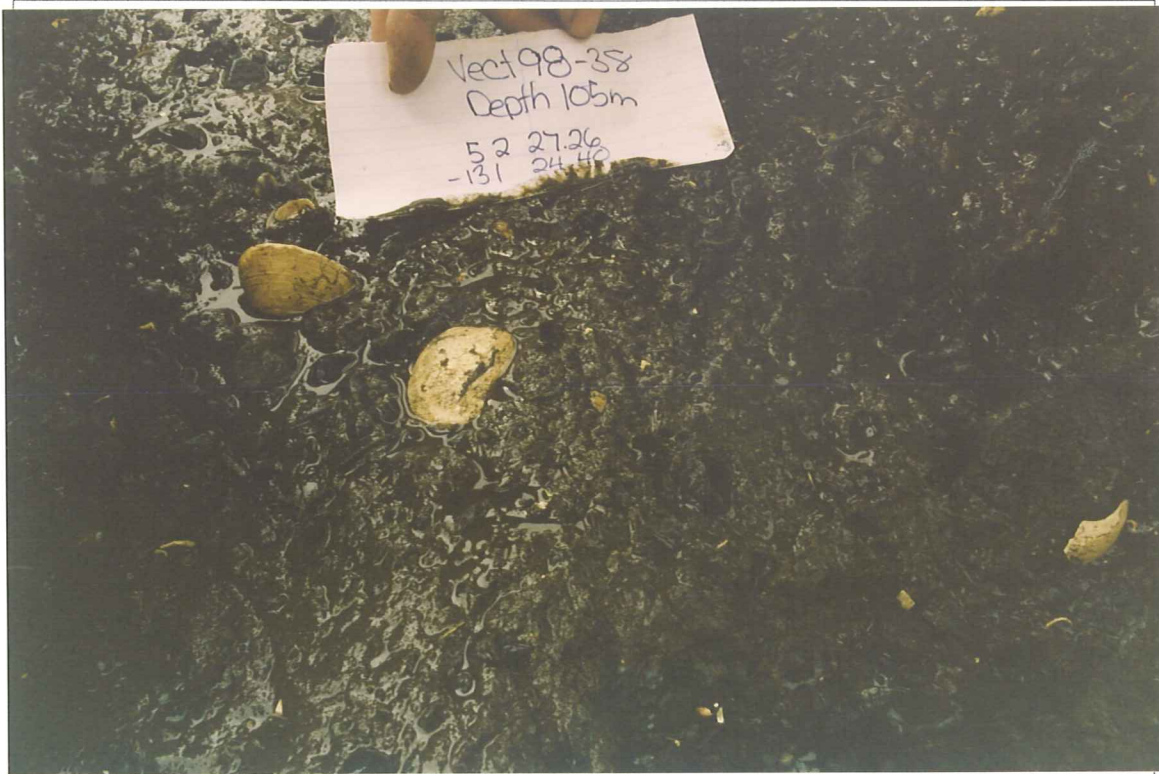
Depth: 97.8m

Description: Gravel lag with massive, bioturbated, mud, sand, and gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Terebellidae			1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	12
Mollusca	Bivalvia	Yoldiidae	Yoldia	scissurata	2
Mollusca	Bivalvia	Tellinidae	Macoma	elimata	2

# Vect98-38



Location: 52 27.26N 131 24.40W

Depth: 105m

Description: Muddy, silty gravel with cobbles. It is bioturbated throughout

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Maldanidae			6
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	5
Mollusca	Bivalvia	Yoldiidae	Yoldia	scissurata	2
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	2
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	1
Mollusca	Bivalvia	Tellinidae	Macoma	elimata	2

# Vect98-39



Location: 52 27.47N 131 24.46W

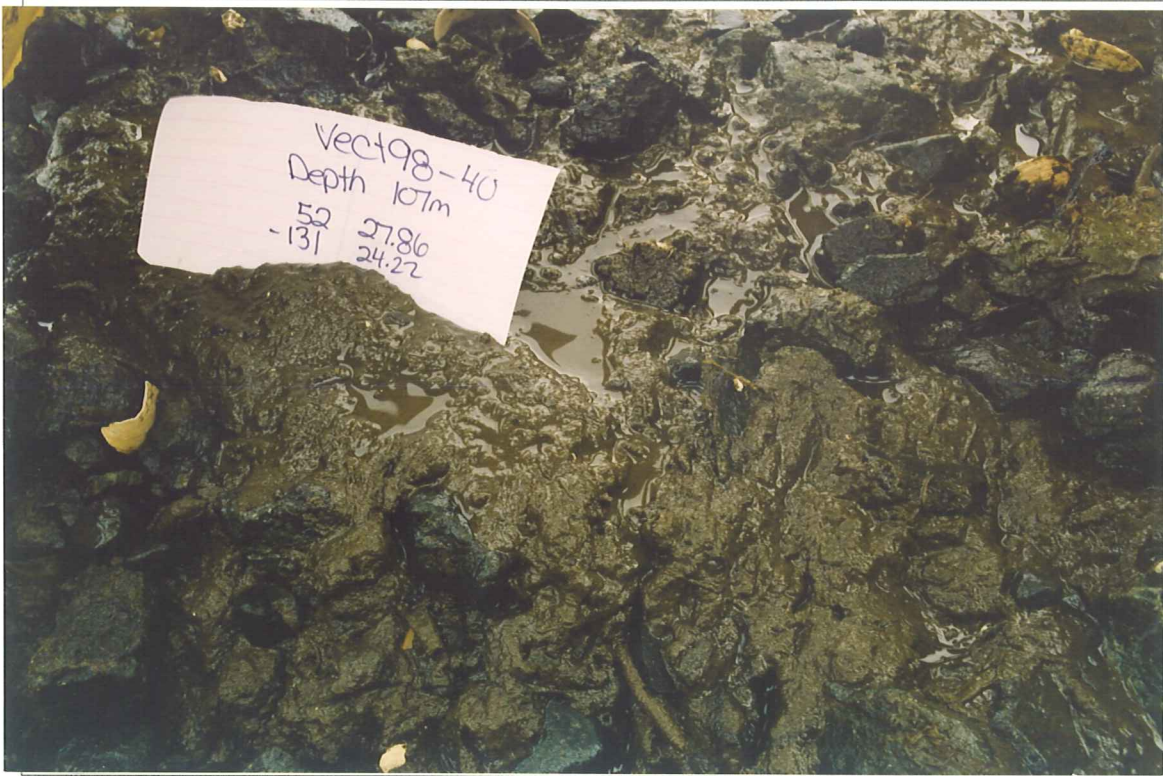
Depth: 108m

Description: Muddy, silty gravel with cobbles. It is bioturbated throughout

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Maldanidae	Asychis	similis	4
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Arthropoda	Malacostraca	Axiidae	Axiopsis	spinulicauda	1
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	2
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	23
Mollusca	Bivalvia	Yoldiidae	Yoldia	scissurata	3
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	7
Mollusca	Bivalvia	Tellinidae	Macoma	elimata	1

## Vect98-40



Location: 52 27.86N 131 24.22W

Depth: 107m

Description: Angular to subangular gravel lag overlaying a silty, mud and fine sand that contain some organics and gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Polynoidae			1
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	2
Echinodermata	Echinoidea	Schizasteridae	Brisaster	latifrons	1
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	3
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1

# Vect98-41



Location: 52 28.68N 131 27.13W

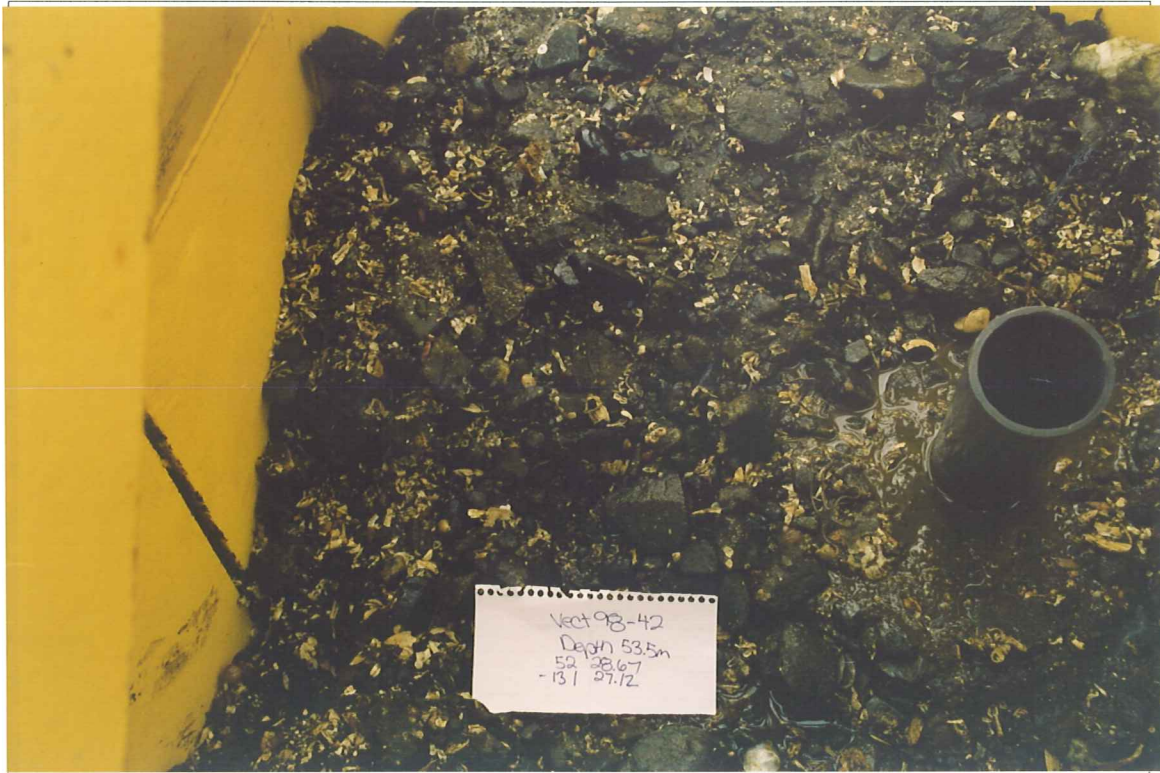
Depth: 53.5m

Description: Muddy gravel with lots of shell fragments and an overlaying gravel lag

Biological Composition: composition for Vect98-41/42

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Malacostraca	Diogenidae	Paguristes	turgidus	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Cnidaria	Hydrozoa				1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	?piperata	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophura	lutkeni	3
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Cardiidae	Clinocardium	fucanum	1
Mollusca	Bivalvia	Veneridae	Humularia	kennerlyi	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	22
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	2
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2
Mollusca	Gastropoda	Fissurellidae	Puncturella	cucullata	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	1
Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	5
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	4
Urochordata	Ascidiacea	Styelidae	Styela	coriacea	1

## Vect98-42



Location: 52 28.67N 131 27.12W

Depth: 53.5m

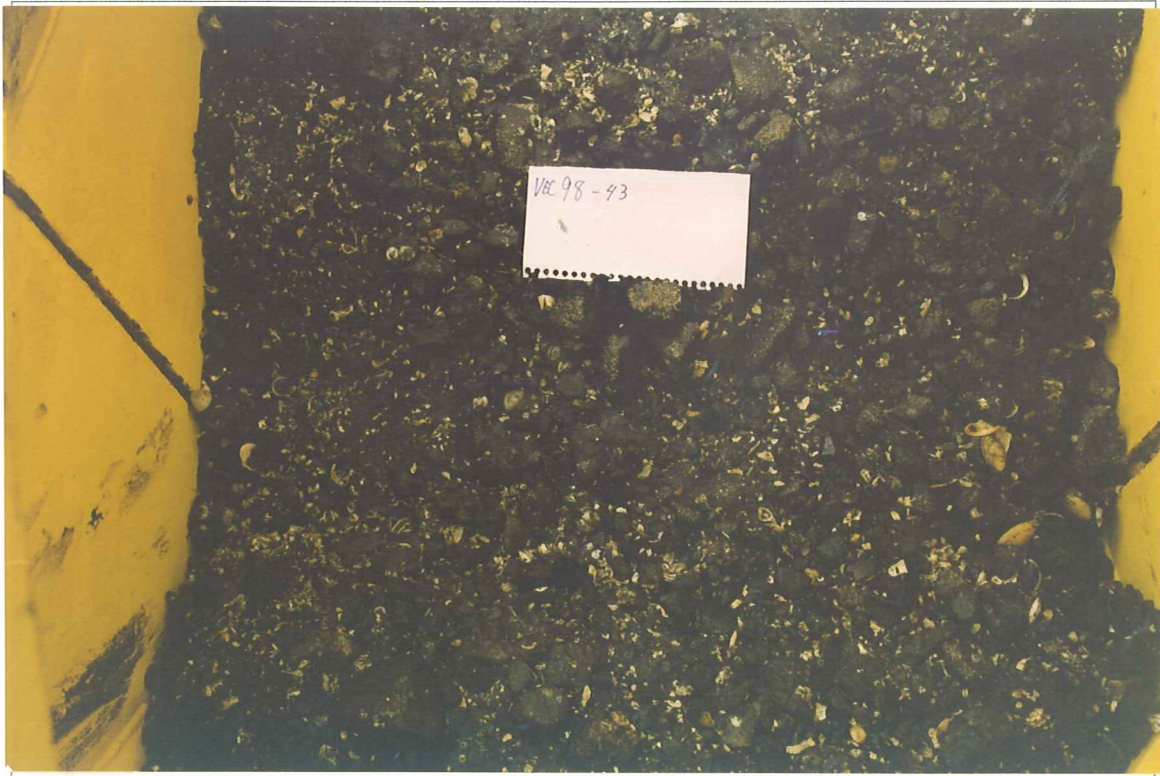
Description: Green, muddy, sandy gravel with horizons of shell hash and an overlaying gravel lag

Biological Composition: composition for Vect98-41/42

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Malacostraca	Diogenidae	Paguristes	turgidus	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Cnidaria	Hydrozoa				1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	?piperata	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophura	lutkeni	3
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Cardiidae	Clinocardium	fucanum	1
Mollusca	Bivalvia	Veneridae	Humilaria	kennerlyi	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	22
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	2
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2
Mollusca	Gastropoda	Fissurellidae	Puncturella	cucullata	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	1
Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	5
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	4
Urochordata	Ascidiacea	Styelidae	Styela	coriacea	1



# Vect98-43



Location: 52 28.64N 131 27.10W

Depth: 54.2m

Description: Gravelly, cobbly lag surface with a muddy, sandy gravel beneath.

Biological Composition: composition for Vect98-43/44/45

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	8
Annelida	Polychaeta	Serpulidae	Crucigera	irregularis	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	5
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Pectinariidae	Pectinaria	sp.	1
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	1
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	rigida	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	5
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	6
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	15
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	procera	1

# Vect98-44



Location: 52 28.60N 131 27.09W

Depth: 53.5m

Description: Gravelly, cobble lag surface with muddy, sandy, gravel beneath.

\*\*FLAKE SITE

Biological Composition: composition of Vect98-43/44/45

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	8
Annelida	Polychaeta	Serpulidae	Crucigera	irregularis	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	5
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Pectinariidae	Pectinaria	sp.	1
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	1
Echinodermata	Holothuroidea	Phyllophoridae	Pentamera	rigida	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	5

Echiura	Echiurida	Echiuridae	Arhynchite	californicus	6
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	15
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	procera	1

# Vect98-45

NO IMAGE

Location: 52 28.56N 131 27.05W

Depth: 53.5m

Description: Gravelly, cobbly lag surface with a muddy, sandy gravel and shell hash beneath.

Biological Composition: composition for Vect98-43/44/45

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	8
Annelida	Polychaeta	Serpulidae	Crucigera	irregularis	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	5
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Pectinariidae	Pectinaria	sp.	1
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	1
Echinodermata	Holothuroidea	Phyllophoridae	Pentamera	rigida	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	5
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	6
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	15
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	procera	1

# Vect98-46



Location: 52 28.53N 131 26.96W

Depth: 53.5m

Description: Gravelly, cobbly lag surface over a green muddy, shelly gravel.

Biological Composition: composition of Vect98-46/47

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	14
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Onuphidae			2
Annelida	Polychaeta	Lumbrineridae	Lumbrineris	sp.	1
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	5
Ectoprocta	Gymnolaemata	Microporellidae	Fenestulina	malusii	1
Mollusca	Bivalvia	Cardiidae	Clinocardium	fucanum	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	artica	1
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	38
Mollusca	Bivalvia	Astartidae	Tridonta	alaskensis	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	2
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	2
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1
Mollusca	Gastropoda	Columbellidae	Nassarius	mendicus	1
Mollusca	Gastropoda	Naticidae	Natica	clausa	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	4
Mollusca	Gastropoda	Calyptraeidae	Calyptraea	fastigiata	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	3
Mollusca	Polyplacophora	Hanleyidae	Hanleya	oldroydi	2
Nemertina	Anopla	Lineidae	Micrura	sp.	4

Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	5

# Vect98-47



Location: 52 28.52N 131 26.99W

Depth: 50.7m

Description: Wood in grab

Biological Composition: composition of Vect98-46/47

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	14
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Onuphidae			2
Annelida	Polychaeta	Lumbrineridae	Lumbrineris	sp.	1
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	5
Ectoprocta	Gymnolaemata	Microporellidae	Fenestulina	malusii	1
Mollusca	Bivalvia	Cardiidae	Clinocardium	fucanum	1

Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	38
Mollusca	Bivalvia	Astartidae	Tridonta	alaskensis	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	2
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	2
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1
Mollusca	Gastropoda	Columbellidae	Nassarius	mendicus	1
Mollusca	Gastropoda	Naticidae	Natica	clausa	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	4
Mollusca	Gastropoda	Calyptraeidae	Calyptraea	fastigiata	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozonia	sp.	3
Mollusca	Polyplacophora	Hanleyidae	Hanleya	oldroydi	2
Nemertina	Anopla	Lineidae	Micrura	sp.	4
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Asciacea	Corellidae	Chelyosoma	columbianum	5



## Vect98-48



Location: 52 28.55N 131 27.06W

Depth: 52.1m

Description: Gravel lag surface over muddy shelly gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Lumbrineridae	Lumbrineris	sp.	2
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	2
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	6
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	3
Mollusca	Bivalvia	Hiatellidae	Hiatella	artica	1
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	1
Mollusca	Bivalvia	Pectinidae	Chlamys	rubida	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	10
Mollusca	Bivalvia	Mytilidae	Megacrenella	columbiana	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilum	1
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	2
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	6
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	3
Mollusca	Polyplacophora	Hanleyidae	Hanleya	oldroydi	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	3
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	5

# Vect98-49



Location: 52 28.61N 131 27.08W

Depth: 52.8m

Description: Gravel/cobble lag surface above muddy, sandy gravel and shell hash

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	14
Annelida	Polychaeta	Terebellidae			1
Annelida	Polychaeta	Arenicolidae			1
Arthropoda	Malacostraca	Hippolytidae	Spirontocaris	sp.	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	2
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Cardiidae	Clinocardium	fucanum	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	artica	3
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	8
Mollusca	Bivalvia	Mytilidae	Megacrenella	columbiana	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1
Mollusca	Gastropoda	Calyptraeidae	Crepidula	dorsata	2
Mollusca	Gastropoda	Naticidae	Natica	clausa	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	3
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	9
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	2

# Vect98-50



Location: 52 29.13N 131 26.81W

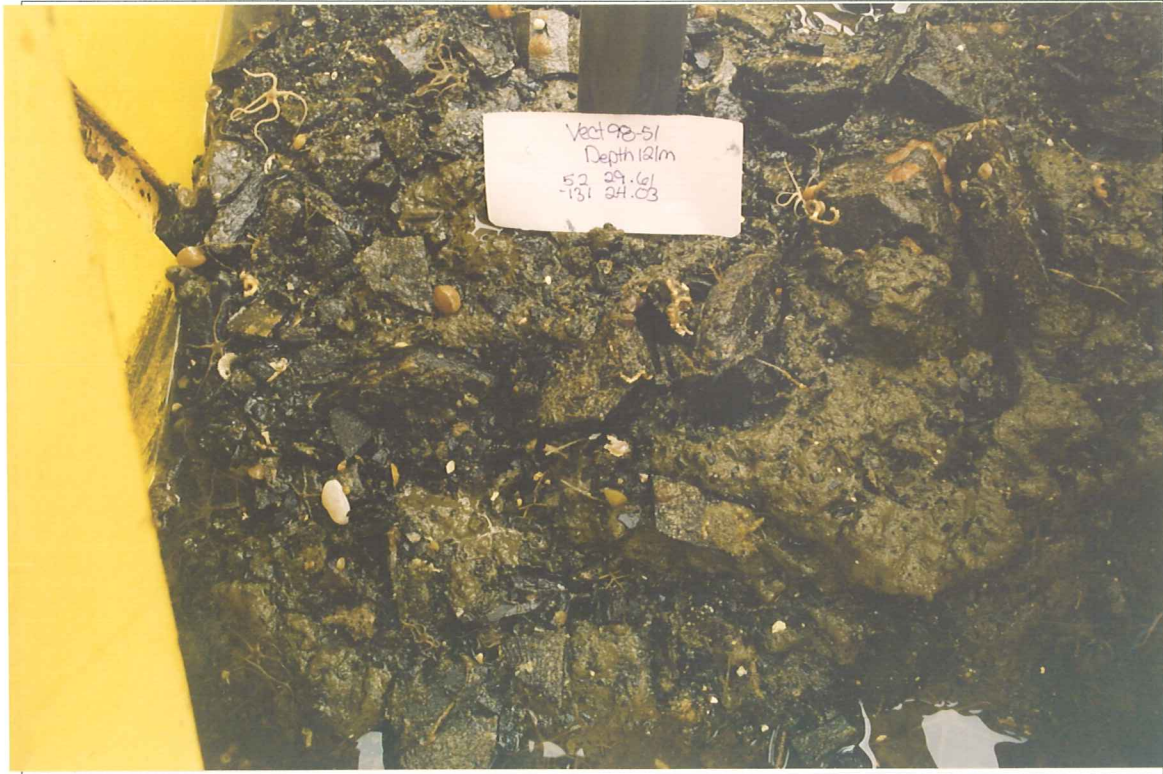
Depth: 75.7m

Description: Gravel/cobble lag above a bioturbated muddy, sandy gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	1
Annelida	Polychaeta	Terebellidae			1
Annelida	Polychaeta	Maldanidae	Asychis	similis	3
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	7
Arthropoda	Malacostraca	Diogenidae	Parguristes	turgidus	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	6
Brachiopoda	Inarticulata	Craniidae	Crania	californica	16
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	9
Echinodermata	Holothuroidea	Psolidae	Psolidium	bidiscum	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1

# Vect98-51



Location: 52 29.61N 131 24.03W

Depth: 121m

Description: Surface lag of very angular cobbles overlying a green, muddy, sandy gravel

Biological Composition: composition of Vect98-51/52

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	4
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Serpulidae	Spirobis	sp.	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	32
Brachiopoda	Inarticulata	Craniidae	Crania	californica	4
Cnidaria	Hydrozoa	Sertulariidae	Abietinaria	sp.	3
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	lissoplaca	2
Echinodermata	Holothuroidea	Psolidae	Psolidium	bidiscum	3
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	47
Ectoprocta	Stenolaemata	Celleporidae	Costazia	sp.	1
Ectoprocta	Stenolaemata	Microporidae	Fenestulina	malusii	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Nuculidae	Nuculana	fossa	1
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	5
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	3
Mollusca	Gastropoda	Fissurellidae	Puncturella	multistriata	1
Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1
Mollusca	Polyplacophora	Leptochitonidae	Leptochiton	rugatus	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	willeti	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	10
Porifera	Demospongia	Suberitidae	Pseudosuberites	sp.	15

Porifera	Demospongiae	Polymastiidae	Polymastia	sp.	1
Porifera	Hexactinellida	Aphrocallistiae	Aphrocallistes	vastus	3
Sipuncula	Phascolosomida	Phascolosomatidae	Phascolosoma	agassizii	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	22
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	5

Picture 1 of 2

## Vect98-51



Location: 52 29.61N 131 24.03W

Depth: 121m

Description: Surface lag of very angular cobbles overlaying a green, muddy, sandy gravel

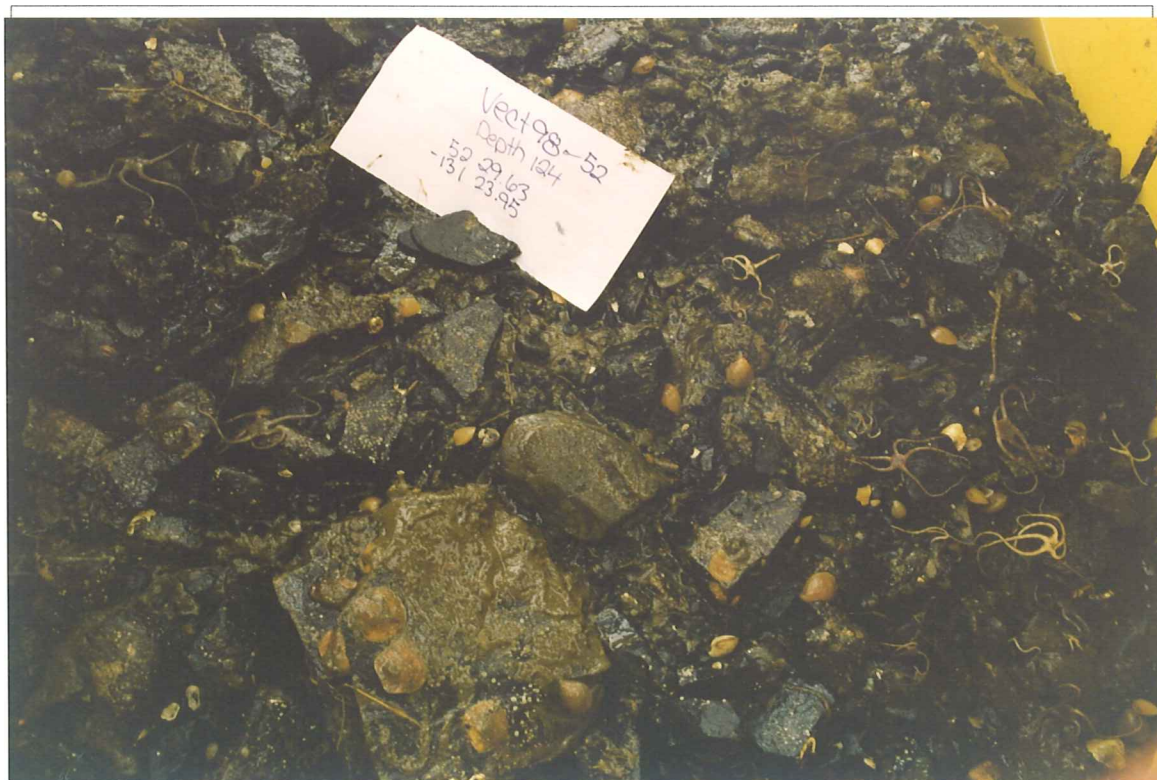
Biological Composition: composition of Vect98-51/52

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	4
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Serpulidae	Spirobis	sp.	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	32
Brachiopoda	Inarticulata	Craniidae	Crania	californica	4
Cnidaria	Hydrozoa	Sertulariidae	Abietinaria	sp.	3
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	lissoplaca	2
Echinodermata	Holothuroidea	Psolidae	Psolidium	bidiscum	3
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	47
Ectoprocta	Stenolaemata	Celleporidae	Costazia	sp.	1
Ectoprocta	Stenolaemata	Microporidae	Fenestulina	malusii	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Nuculidae	Nuculana	fossa	1
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1

Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	5
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	3
Mollusca	Gastropoda	Fissurellidae	Puncturella	multistriata	1
Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1
Mollusca	Polyplacophora	Leptochitonidae	Leptochiton	rugatus	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	willeti	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	10
Porifera	Demospongea	Suberitidae	Pseudosuberites	sp.	15
Porifera	Demospongea	Polymastiidae	Polymastia	sp.	1
Porifera	Hexactinellida	Aphrocallistiae	Aphrocallistes	vastus	3
Sipuncula	Phascolosomida	Phascolosomatidae	Phascolosoma	agassizii	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	22
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	5

Picture 2 of 2

## Vect98-52



Location: 52 29.63N 131 23.95W

Depth: 124m

Description: Very angular gravel/cobble lag over a green, muddy, gravel with gray gravel (fluvial?) deposit near the base

Biological Composition: composition of Vect98-51/52

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	4
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Serpulidae	Spirobis	sp.	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	32
Brachiopoda	Inarticulata	Craniidae	Crania	californica	4
Cnidaria	Hydrozoa	Sertulariidae	Abietinaria	sp.	3
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	lissoplaca	2
Echinodermata	Holothuroidea	Psolidae	Psolidium	bidiscum	3
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	47
Ectoprocta	Stenolaemata	Celleporidae	Costazia	sp.	1
Ectoprocta	Stenolaemata	Microporidae	Fenestrulina	malusii	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Nuculidae	Nuculana	fossa	1
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	5
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	3
Mollusca	Gastropoda	Fissurellidae	Puncturella	multistriata	1
Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1
Mollusca	Polyplacophora	Leptochitonidae	Leptochiton	rugatus	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	willeti	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	10

Porifera	Demospongea	Suberitidae	Pseudosuberites	sp.	15
Porifera	Demospongea	Polymastiidae	Polymastia	sp.	1
Porifera	Hexactinellida	Aphrocallistiae	Aphrocallistes	vastus	3
Sipuncula	Phascolosomida	Phascolosomatidae	Phascolosoma	agassizii	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	22
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	5

Picture 1 of 2

## Vect98-52



Location: 52 29.63N 131 23.95W

Depth: 124m

Description: Very angular gravel/cobble lag over a green, muddy, gravel with gray gravel (fluvial?) deposit near the base

Biological Composition: composition of Vect98-51/52

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Maldanidae	Asychis	similis	4
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Serpulidae	Spirobis	sp.	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	32
Brachiopoda	Inarticulata	Craniidae	Crania	californica	4
Cnidaria	Hydrozoa	Sertulariidae	Abietinaria	sp.	3
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	lissoplaca	2
Echinodermata	Holothuroidea	Psolidae	Psolidium	bidiscum	3
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	47
Ectoprocta	Stenolaemata	Celleporidae	Costazia	sp.	1
Ectoprocta	Stenolaemata	Microporidae	Fenestrulina	malusii	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1



Mollusca	Bivalvia	Nuculidae	Nuculana	fossa	1
Mollusca	Bivalvia	Astartidae	Astarte	esquimalti	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	5
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	3
Mollusca	Gastropoda	Fissurellidae	Puncturella	multistriata	1
Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1
Mollusca	Polyplacophora	Leptochitonidae	Leptochiton	rugatus	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	willeti	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	10
Porifera	Demospongea	Suberitidae	Pseudosuberites	sp.	15
Porifera	Demospongea	Polymastiidae	Polymastia	sp.	1
Porifera	Hexactinellida	Aphrocallistiae	Aphrocallistes	vastus	3
Sipuncula	Phascolosomida	Phascolosomatidae	Phascolosoma	agassizii	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	22
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	5

Picture 2 of 2

## Vect98-53



Location: 52 29.61N 131 23.87W

Depth: 120m

Description: Very angular lag surface over a green, muddy, gravel.

Biological Composition: composition of Vect98-53/54

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Maldanidae	Asychis	similis	12
Annelida	Polychaeta	Opheliidae	Travisia	pupa	1
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Terebellidae			2
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Arthropoda	Malacostraca	Axiidae	Axiopsis	spinulicauda	2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	11
Brachiopoda	Articulata	Laqueidae	Terebratulina	unguicula	1
Brachiopoda	Inarticulata	Craniidae	Crania	californica	2
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	rigida	2
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	1
Echinodermata	Holothuroidea	Psolidae	Psolidium	bidiscum	2
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	pediparva	2
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	4
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	macraspis	2
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	2
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	artica	2
Mollusca	Bivalvia	Nuculidae	Nuculana	sp.	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	5
Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1

Mollusca	Polyplacophora	Leptochitonidae	Leptochiton	rugatus	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	5
Porifera	Calcarea	Scyettidae	Scypha	raphanus	1
Porifera	Demospongea	Suberitidae	Pseudosuberites	sp.	5
Porifera	Hexactinellida	Aphrocallistidae	Aphrocallistes	vastus	17
Sipuncula	Sipunculida	Golfingiidae	Golfingia	eremita	3
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	2
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	3
Urochordata	Ascidiacea	Pyuridae	Halocynthia	igaboja	1

# Vect98-54



Location: 52 29.64N 131 23.85W

Depth: 121m

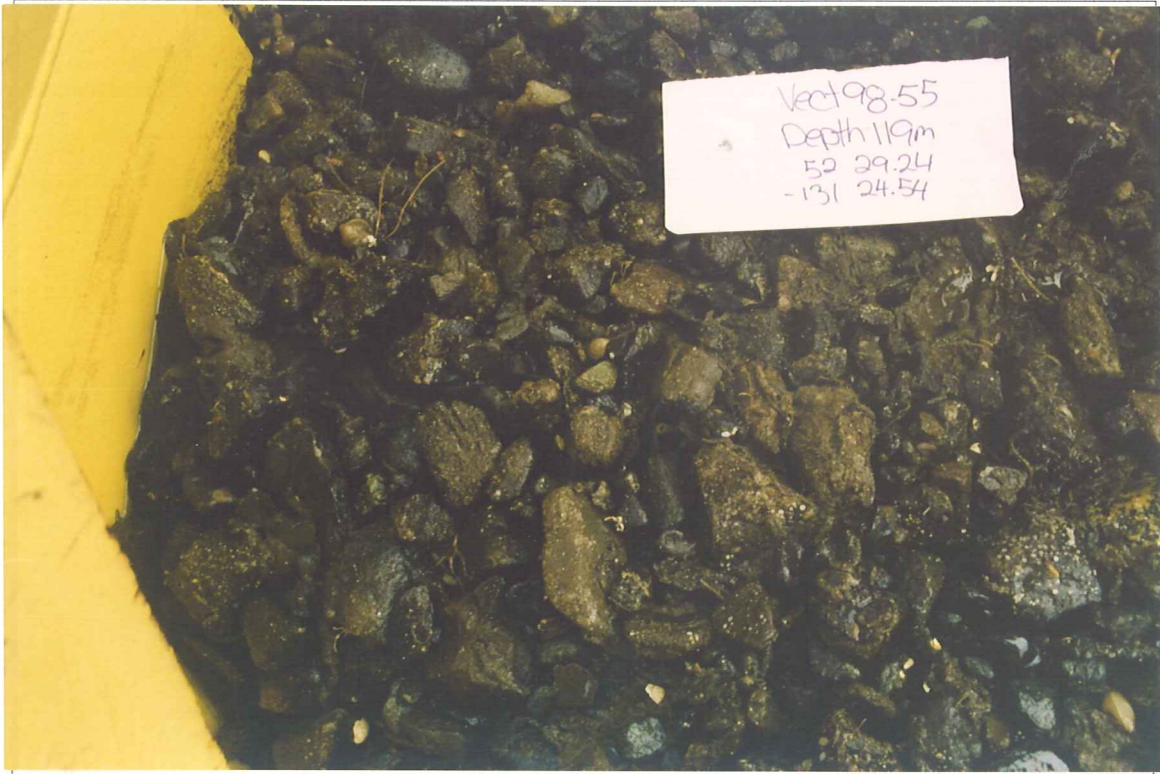
Description: Limited gravel lag on bioturbated green, sandy, muddy gravel with a black shell-rich layer.

Biological Composition: composition of Vect98-53/54

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Maldanidae	Asychis	similis	12
Annelida	Polychaeta	Opheliidae	Travisia	pupa	1
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Terebellidae			2
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Arthropoda	Malacostraca	Axiidae	Axiopsis	spinulicauda	2
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	11
Brachiopoda	Articulata	Laqueidae	Terebratulina	unguicula	1
Brachiopoda	Inarticulata	Craniidae	Crania	californica	2
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	rigida	2
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	1
Echinodermata	Holothuroidea	Psolidae	Psolidium	bidiscum	2
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	pediparva	2
Echinodermata	Holothuroidea	Phylloporidae	Thyone	benti	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	4
Echinodermata	Ophiuroidea	Amphiuridae	Amphioplus	macraspis	2
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	2
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	2
Mollusca	Bivalvia	Nuculidae	Nuculana	sp.	1
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	2
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	5

Mollusca	Gastropoda	Trochidae	Cidarina	cidaris	1
Mollusca	Polyplacophora	Leptochitonidae	Leptochiton	rugatus	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	5
Porifera	Calcarea	Scyettidae	Scypha	raphanus	1
Porifera	Demospongea	Suberitidae	Pseudosuberites	sp.	5
Porifera	Hexactinellida	Aphrocallistidae	Aphrocallistes	vastus	17
Sipuncula	Sipunculida	Golfingiidae	Golfingia	eremita	3
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	2
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	3
Urochordata	Ascidiacea	Pyuridae	Halocynthia	igaboja	1

## Vect98-55



Location: 52 29.24N 131 24.54W

Depth: 119m

Description: Gravel lag of rounded pebbles and cobbles above a green, bioturbated muddy sand.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Pectinariidae	Pectinaria	sp.	1
Annelida	Polychaeta	Nephtyidae			1
Annelida	Polychaeta	Maldanidae	Asychis	similis	5
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	4
Brachiopoda	Inarticulata	Craniidae	Crania	californica	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Nuculidae	Nuculana	fossa	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	2
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianun	1

## Vect98-56



Location: 52 29.24N 131 24.66W

Depth: 117m

Description: Gravel lag of rounded pebbles and cobbles above a green, bioturbated muddy sand.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Terebellidae			1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	2
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	3
Brachiopoda	Inarticulata	Craniidae	Crania	californica	4
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Gastropoda	Columbellidae	Nassarius	mendicus	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	5
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	3
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	2

# Vect98-57

NO IMAGE

Location: 52 28.88N 131 27.26W

Depth: 55.9m

Description: None

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Arenicolidae		a	3
Annelida	Polychaeta	Glyceridae	Glycera	sp.	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	3
Arthropoda	Cirripedia	Archaeobalanidae	Solidobalanus	hesperius	6
Arthropoda	Malacostraca	Majidae	Chorila	longipes	1
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	10
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	2
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	23
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	1
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	11
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	3
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	3
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	3
Urochordata	Ascidiacea	Pyuridae	Halocynthia	igaboja	1



# Vect98-58



Location: 52 28.87N 131 27.16W

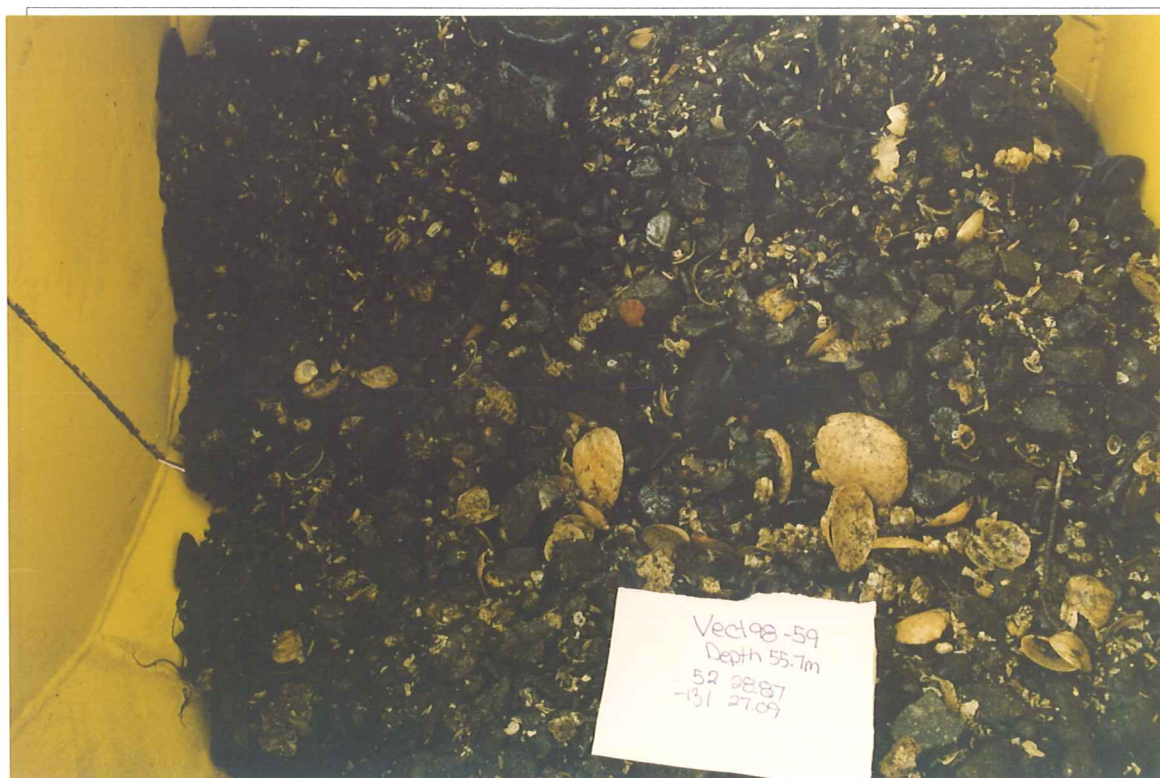
Depth: 55.7m

Description: Coarse lag partially obscured by fine sand and gravel

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Ciripedia	Archaeobalanidae	Solidobalanus	hesperius	15
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Echinodermata	Ophiuroidea	Amphiuridae	Amphiodia	periercta	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	4
Mollusca	Bivalvia	Mytilidae	Megacrenella	columbiana	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	14
Mollusca	Gastropoda	Columbellidae	Alia	sp.	2
Mollusca	Gastropoda	Olividae	Olivella	baetica	1

## Vect98-59



Location: 52 28.87N 131 27.09W

Depth: 55.7m

Description: Gravel lag of 70% rounded and 30% angular fragments above a finer substrate of silty, muddy, sand.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Terebellidae			1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	4
Annelida	Polychaeta	Polynoidae			2
Annelida	Polychaeta	Onuphidae			1
Arthropoda	Cirripedia	Archaeobalanidae	Solidobalanus	hesperius	9
Arthropoda	Cirripedia	Balanidae	Balanus	rostratus	6
Arthropoda	Malacostraca	Paguridae	Pagurus	sp.	1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	miniata	1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	5
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	4
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	artica	17
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	2
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	3
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	1
Mollusca	Gastropoda	Muricidae	Trophonopsis	lasius	1
Mollusca	Gastropoda	Calyptraeidae	Crepidula	dorsata	2
Mollusca	Polyplocophora	Ischnochitonidae	Lepidozona	sp.	8

# Vect98-60



Location: 52 28.88N 131 27.00W

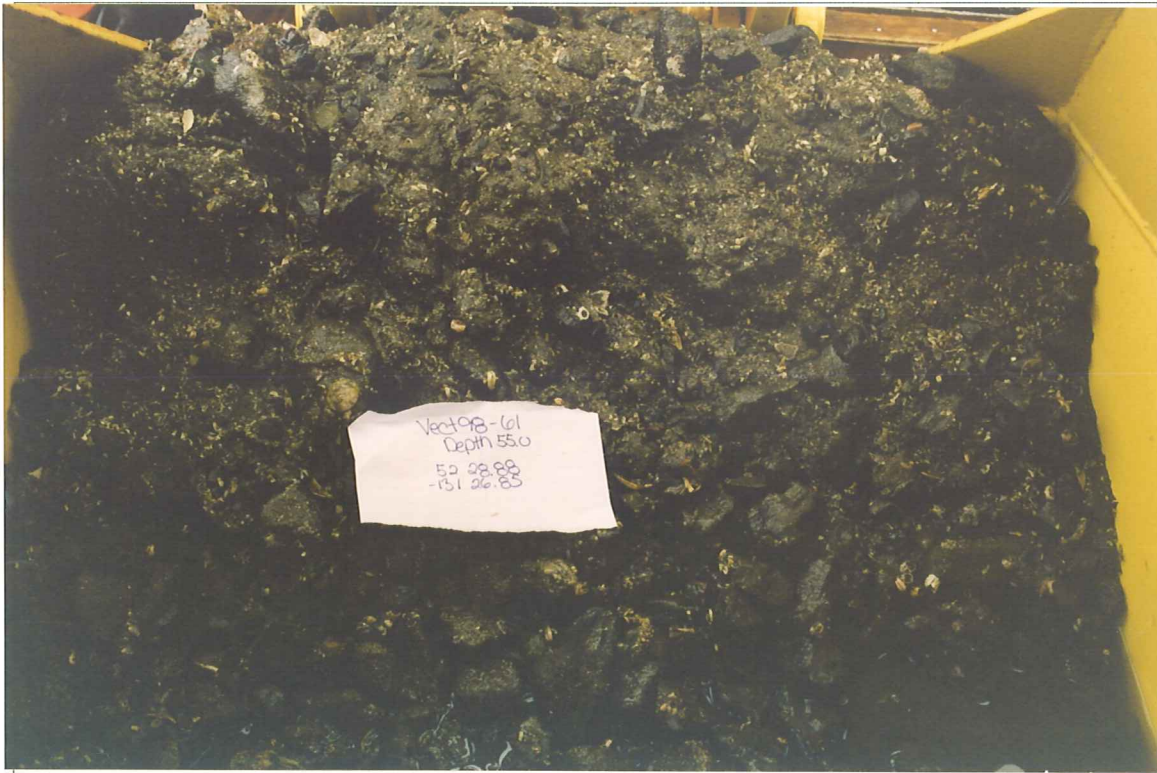
Depth: 56.6m

Description: Fine sand

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	2
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	11
Mollusca	Bivalvia	Lucinidae	Lucinoma	annulata	13
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	10
Mollusca	Bivalvia	Lucinidae	Lucina	tenuisculpta	11
Mollusca	Gastropoda	Columbellidae	Alia	sp.	1
Mollusca	Gastropoda	Naticidae	Natica	clausa	1

# Vect98-61



Location: 52 28.88N 131 26.85W

Depth: 55.0m

Description: Lag surface overlaying a shelly, muddy, sandy gravel.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	6
Annelida	Polychaeta	Lumbrineridae	Lumbrineris	sp.	1
Arthropoda	Cirripedia	Balanidae	Balanus	crenatus	25
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	1
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	2
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	3
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	10
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	20
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	3
Mollusca	Gastropoda	Columbellidae	Nassarius	mendicus	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	willeti	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	9

## Vect98-62



Location: 52 29.27N 131 27.54W

Depth: 55.0m

Description: Fine gravel to coarse sand lag with green sandy gravel.

Biological Composition: composition of Vect98-62/63

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Sabellidae			3
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Arthropoda	Malacostraca	Paguridae	Discorsopagurus	schmitti	1
Brachiopoda	Inarticulata	Craniidae	Crania	californica	2
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	16
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	pallida	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	2
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	1
Porifera	Demospongea	Esperiopsidae	Neosperiopsis	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	2
Urochordata	Ascidiacea	Pyuridae	Halocynthia	igaboja	1
Urochordata	Ascidiacea	Styelidae	Styela	gibbsii	3

## Vect98-63



Location: 52 29.26N 131 27.52W

Depth: 56.4m

Description: Surface lag of 90% well rounded and 10% angular cobbles above a green silty gravel sand.

Biological Composition: composition of Vect98-62/63

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Sabellidae			3
Arthropoda	Malacostraca	Pinnotheridae	Pinnixa	occidentalis	1
Arthropoda	Malacostraca	Paguridae	Discorsopagurus	schmitti	1
Brachiopoda	Inarticulata	Craniidae	Crania	californica	2
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	piperata	16
Echinodermata	Holothuroidea	Cucumariidae	Cucumaria	pallida	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	sarsi	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Echiura	Echiurida	Echiuridae	Arhynchite	californicus	2
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	1
Porifera	Demospongea	Esperiopsidae	Neosperiopsis	sp.	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	2
Urochordata	Ascidiacea	Pyuridae	Halocynthia	igaboja	1
Urochordata	Ascidiacea	Styelidae	Styela	gibbsii	3

# Vect98-64

NO IMAGE

Location: 52 28.60N 131 27.07W

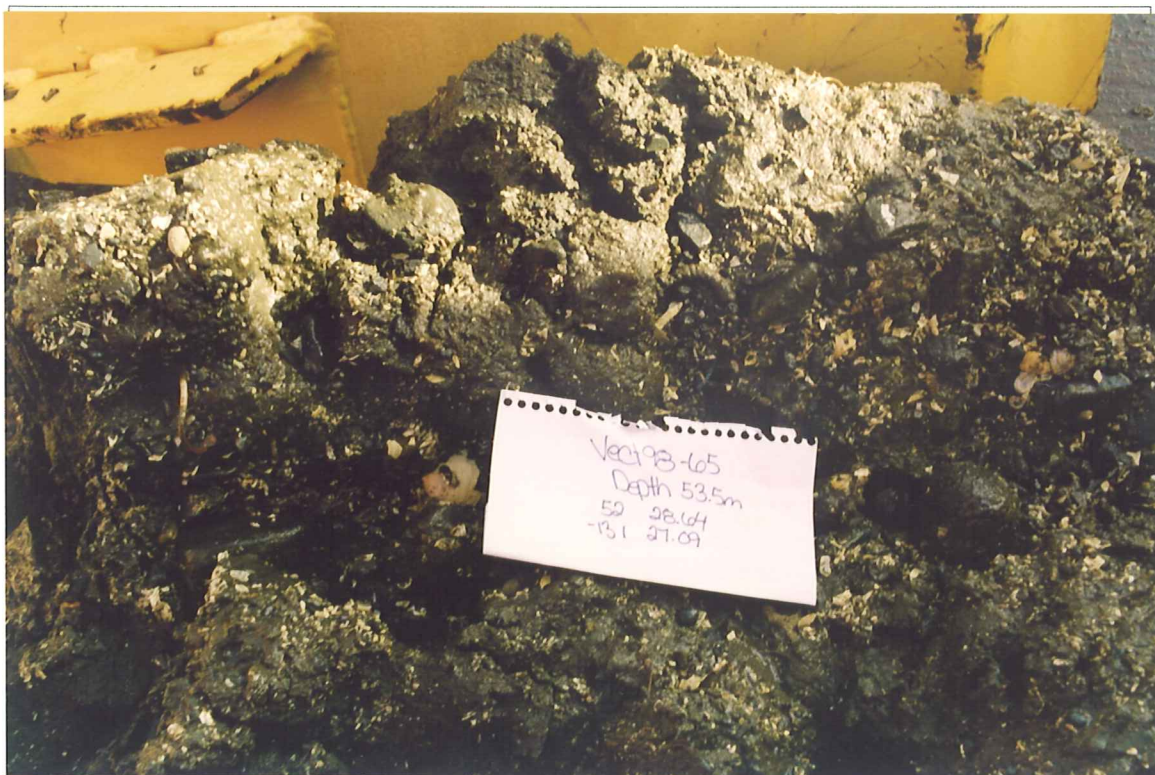
Depth: 53.5m

Description: Cobbly gravel lag above a silty, shelly gravel.

Biological Composition: composition of Vect98-64/65

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	9
Annelida	Polychaeta	Pectinariidae	Pectinaria	granulata	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	10
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Terebellidae			8
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	2
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	2
Brachiopoda	Articulata	Laqueidae	Terebratalia	transversa	1
Echinodermata	Echinoidea	Strongylocentrotidae	Strongylocentrotus	droebachiensis	1
Echinodermata	Holothuroidea	Chiridotidae	Chiridota	sp.	1
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	pediparva	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	7
Echiura	Echiurida				1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	3
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	6
Mollusca	Bivalvia	Cardiidae	Clinocardium	fucanum	1
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	30
Mollusca	Bivalvia	Mytilidae	Megacrenella	columbiana	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	2
Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	6
Mollusca	Gastropoda	Columbellidae	Nassarius	mendicus	2
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	1
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	2
Mollusca	Gastropoda	Naticidae	Natica	clausa	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	7
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	23
Urochordata	Asciacea	Corellidae	Chelyosoma	columbianum	8
Urochordata	Asciacea	Styelidae	Styela	coriacea	4

## Vect98-65



Location: 52 28.64N 131 27.09W

Depth: 53.5m

Description: Surface lag of cobbles and gravel overlying a silty sandy gravel

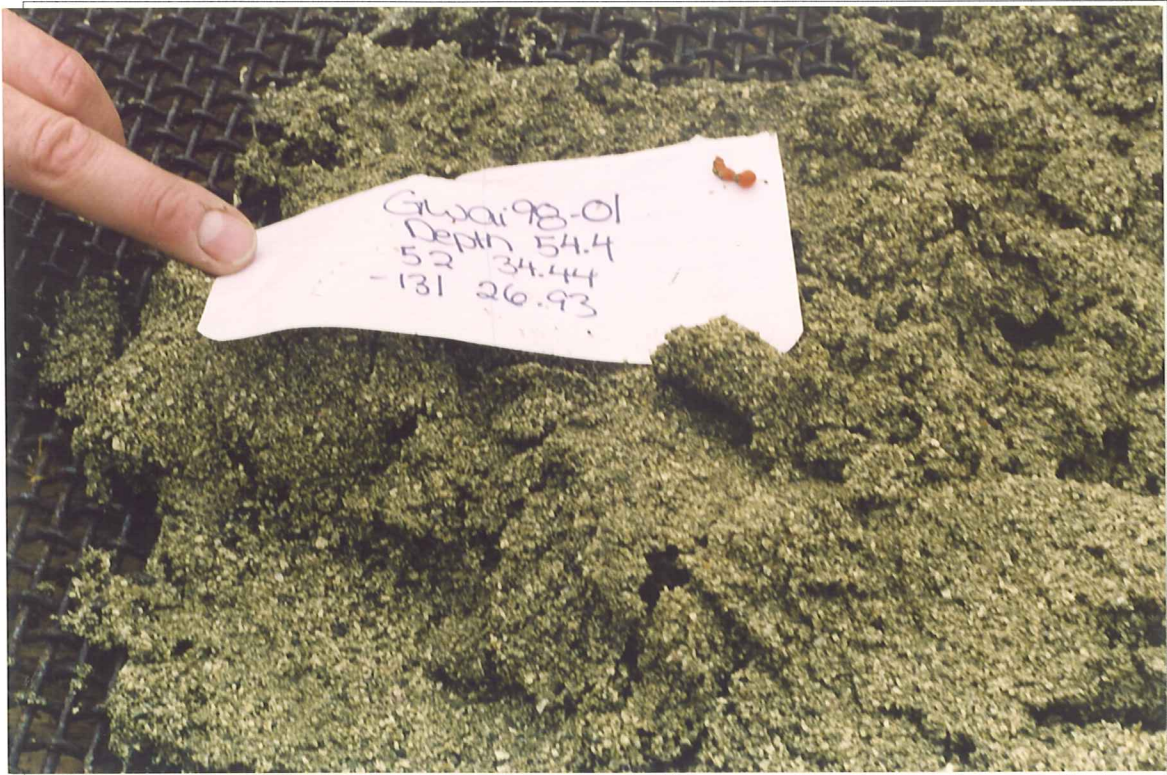
Biological Composition: composition of Vect98-64/65

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Glyceridae	Glycera	americana	9
Annelida	Polychaeta	Pectinariidae	Pectinaria	granulata	1
Annelida	Polychaeta	Flabelligeridae	Piromis	eruca	10
Annelida	Polychaeta	Onuphidae			1
Annelida	Polychaeta	Terebellidae			8
Arthropoda	Malacostraca	Aegidae	Rocinela	belliceps	2
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	2
Brachiopoda	Articulata	Laqueidae	Terebratalia	transversa	1
Echinodermata	Echinoidea	Strongylocentrotidae	Strongylocentrotus	droebachiensis	1
Echinodermata	Holothuroidea	Chiridotidae	Chiridota	sp.	1
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	pediparva	3
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	7
Echiura	Echiurida				1
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	3
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	6
Mollusca	Bivalvia	Cardiidae	Clinocardium	fucanum	1
Mollusca	Bivalvia	Mytilidae	Modiolus	modiolus	1
Mollusca	Bivalvia	Pectinidae	Chlamys	hericia	1
Mollusca	Bivalvia	Veneridae	Compsomyax	subdiaphana	1
Mollusca	Bivalvia	Nuculidae	Acila	castrensis	30
Mollusca	Bivalvia	Mytilidae	Megacrenella	columbiana	1
Mollusca	Bivalvia	Cardiidae	Nemocardium	centifilosum	2
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	2



Mollusca	Gastropoda	Columbellidae	Amphissa	sp.	6
Mollusca	Gastropoda	Columbellidae	Nassarius	mendicus	2
Mollusca	Gastropoda	Lepetidae	Lepeta	caeca	1
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	2
Mollusca	Gastropoda	Naticidae	Natica	clausa	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	sp.	7
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	23
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	8
Urochordata	Ascidiacea	Styelidae	Styela	coriacea	4

# Gwai98-01



Location: 52 34.44N 131 26.93W

Depth: 16.6m

Description: Sand sized shell hash

Biological Composition:

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Mollusca	Bivalvia	Veneridae	Transennella	tantilla	1
Mollusca	Gastropoda	Columbellidae	Alia	gausapata	1
Mollusca	Gastropoda	Olividae	Olivella	baetica	2
Mollusca	Gastropoda	Fissurellidae	Puncturella	cucullata	1

## Gwai98-02



Location: 52 34.36N 131 26.94W

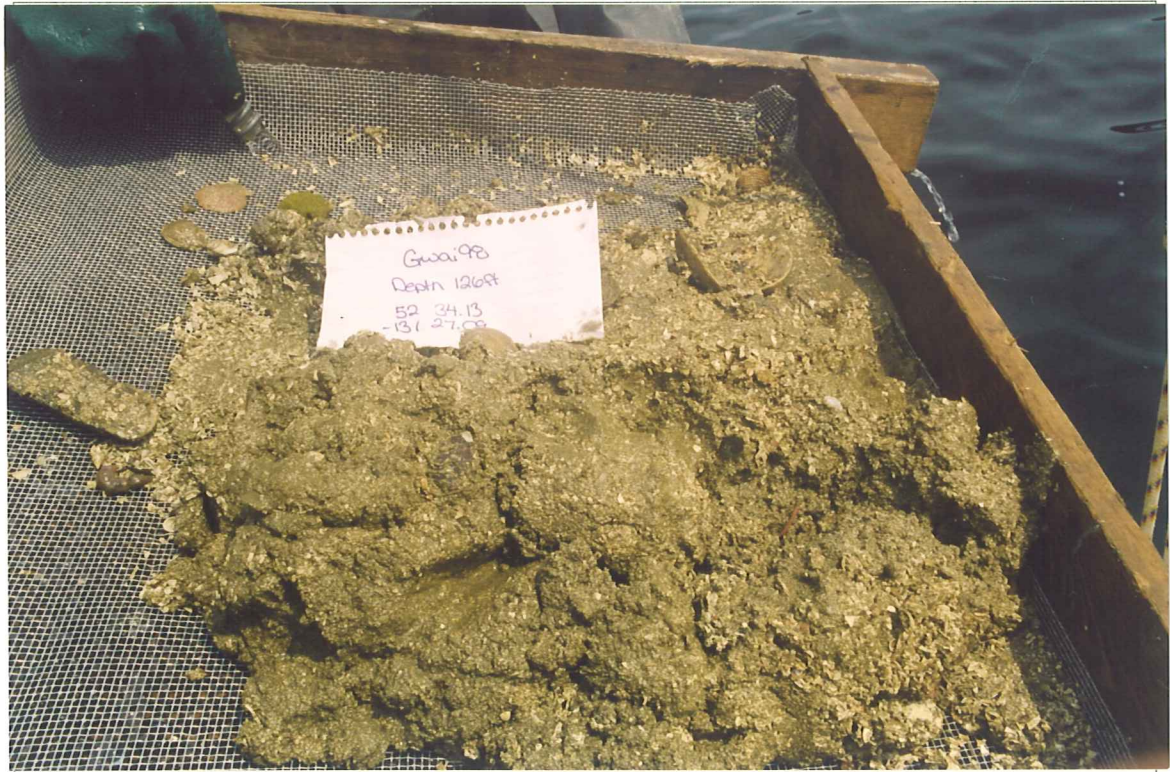
Depth: 25.8m

Description: Gravel to pebble sized shell hash.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Malacostraca	Canceridae	Cancer	branneri	1
Echinodermata	Holothuroidea	Synaptidae	Leptosynapta	sp.	2
Mollusca	Bivalvia	Veneridae	Transennella	tantilla	1
Mollusca	Gastropoda	Columbellidae	Alia	gausapata	1
Mollusca	Gastropoda	Olividae	Olivella	baetica	1
Sipuncula	Sipunculida				1

## Gwai98-03



Location: 52 34.13N 131 27.09W

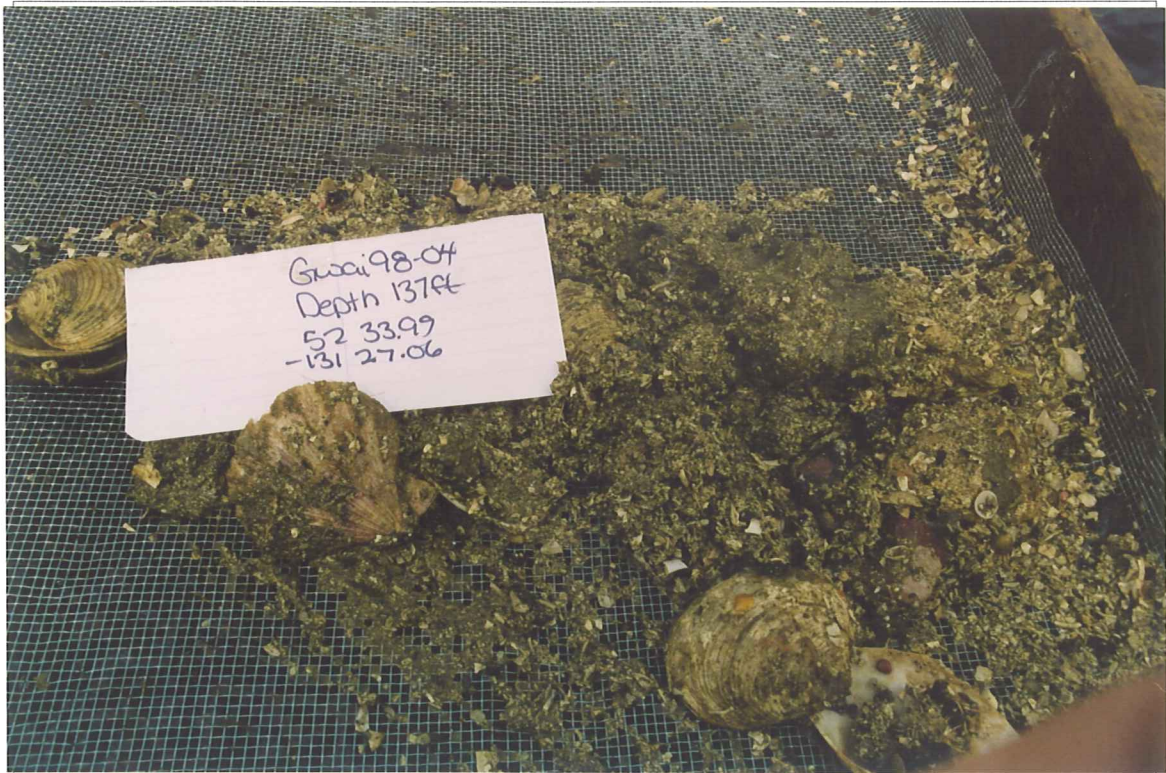
Depth: 38.4m

Description: Fine to coarse gravel sized shell hash with occasional pebbles.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Arthropoda	Malacostraca	Canceridae	Cancer	branneri	1
Arthropoda	Malacostraca	Xanthidae	Lophopanopeus	bellus	1
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	pediparva	1
Echinodermata	Holothuroidea	Phylloporidae	Pentamera	lissoplaca	2
Echinodermata	Holothuroidea	Chiridotidae	Chiridota	sp.	1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Mollusca	Bivalvia	Veneridae	Humilaria	kennerlyi	2
Mollusca	Bivalvia	Psammobiidae	Gari	californica	2
Urochordata	Ascidiacea	Mogulidae	Molgula	sp.	1

## Gwai98-04



Location: 52 33.99N 131 27.06W

Depth: 41.8m

Description: Fine to coarse shell hash with occasional pebbles.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Cnidaria	Anthozoa	Caryophylliidae	Paracyathus	stearnsii	1
Echinodermata	Echinoidea	Strongylocentrotidae	Strongylocentrotus	pallidus	1
Echinodermata	Ophiuroidea	Amphiuridae	Amphipholis	pugetana	1
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	1
Mollusca	Gastropoda	Turbinidae	Homalopoma	luridum	2
Mollusca	Gastropoda	Columbellidae	Amphissa	versicolor	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	willetti	1
Sipuncula	Phascolosomida	Phascolosomatidae	Phascolosoma	agassizii	1
Urochordata	Ascidiacea	Mogulidae	Molgula	cf oculata	1

# Gwai98-05

NO IMAGE

Location: 52 33.85N 131 26.98W

Depth: 41.5m

Description: Poor grab – suspect a rocky bottom.

Biological Composition:

<b>Phylum</b>	<b>Class</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Quantity</b>
Cnidaria	Anthozoa	Caryophylliidae	Paracyathus	stearnsii	1
Cnidaria	Hydrozoa	Lafoeidae	Lafoea	sp.	1
Ectoprocta	Gymnolaemata	Flustridae	Hincksina	pallida	1
Ectoprocta	Stenolaemata	Diastoporidae	Diaperoecia	californica	6
Ectoprocta	Stenolaemata	Crisiidae	Crisia	sp.	1
Ectoprocta	Stenolaemata	Celleporidae	Costazia	sp.	1
Mollusca	Bivalvia	Scrobiculariidae	Semele	rubropicta	2
Mollusca	Bivalvia	Teredinidae			1
Mollusca	Gastropoda	Trichotropidae	Trichotropis	cancellata	2
Mollusca	Gastropoda	Calyptraeidae	Crepidula	dorsata	1
Mollusca	Polyplacophora	Ischnochitonidae	Lepidozona	retiporosa	1
Urochordata	Ascidiacea	Corellidae	Chelyosoma	columbianum	1

## Gwai98-06



Location: 52 33.75N 131 27.01

Depth: 58.5m

Description: Pebbles and cobbles with a fine and coarse shell hash

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Aphroditidae	Aphrodita	sp.	1
Brachiopoda	Articulata	Laqueidae	Laqueus	californianus	1
Echinodermata	Holothuroidea	Cucumariidae			1
Echinodermata	Ophiuroidea	Ophiuridae	Ophiura	lutkeni	1
Mollusca	Gastropoda	Calyptraeidae	Crepidula	dorsata	1
Sipuncula	Sipunculida	Golfingiidae	Golfingia	margaritacea	1
Urochordata	Ascidiacea	Didemnidae			1

## Gwai98-07



Location: 52 33.25N 131 27.11

Depth: 141m

Description: Muddy, silty cobble gravel with angular cobbles.

Biological Composition:

Phylum	Class	Family	Genus	Species	Quantity
Annelida	Polychaeta	Sternaspidae	Sternaspis	scutata	4
Annelida	Polychaeta	Chaetopteridae			3
Echinodermata	Ophiuroidea	Amphiuridae	Amphiodia	urtica	3
Mollusca	Bivalvia	Carditidae	Cyclocardia	ventricosa	1
Mollusca	Bivalvia	Hiatellidae	Hiatella	arctica	1
Mollusca	Bivalvia	Psammobiidae	Gari	californica	2
Mollusca	Scaphopoda	Dentaliidae	Dentalium	rectius	1
Nemertina	Anopla	Carinomidae	Carinoma	sp.	1