

Shrimp and Fish Abundance Observed by a Towed-Video Along Trawling and Trapping Transects in Simoom Sound, British Columbia, Canada.

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COLUMBIA, CANADA

By

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ABSTRACT

Sutherland, T.F., Levings, C.D., Keong, V., MacLean, H., and Piercey, G.E. 2023. Shrimp and Fish Abundance Observed by a Towed-Video Along Trawling and Trapping Transects in Simoom Sound, British Columbia, Canada. *Can. Dat. Rep. Fish. Aquat. Sci.* 1378: vii + 39 p.

This study is a component of a larger project designed to compare the effects of shrimp trawling and trapping gear on shrimp, fish and the benthic habitat of Simoom Sound located in Broughton Archipelago, British Columbia, Canada. Otter-trawling, beam-trawling, and trapping took place in three distinct experiment blocks of the central seabed of the Sound. In turn, each block consisted of replicate transects, where a towed submersible video-camera surveyed shrimp and fish before and after trawling. Video surveys were deployed only before trapping. From the video surveys, we determined the abundance of common shrimp taxa and fish.

RESUMÉ

Sutherland, T.F., Levings, C.D., Keong, V., MacLean, H., and Piercey, G.E. 2023. Shrimp and Fish Abundance Observed by a Towed-Video Along Trawling and Trapping Transects in Simoom Sound, British Columbia, Canada. *Can. Dat. Rep. Fish. Aquat. Sci.* 1378: vii + 39 p.

Cette étude fait partie d'un projet plus vaste visant à comparer les effets du chalutage et du piégeage des crevettes sur les crevettes, les poissons et l'habitat benthique du détroit de Simoom, situé dans l'archipel de Broughton, en Colombie-Britannique, au Canada. Le chalutage à panneaux, le chalutage à perche et le piégeage ont eu lieu dans trois blocs expérimentaux distincts du fond marin central du détroit. Chaque bloc était constitué de transects répétés, où une caméra vidéo submersible remorquée étudiait les crevettes et les poissons avant et après le chalutage. Les études vidéo n'ont été déployées qu'avant le piégeage. À partir des études vidéo, nous avons déterminé l'abondance des taxons de crevettes et de poissons communs.

1.0 INTRODUCTION

The growing consensus among investigators has been that mobile fishing gear can disturb benthic habitats by modifying diversity, community structure, trophic structure and natural productivity (Dayton et al. 1995; Kaiser et al. 1996, 1998; Jennings and Kaiser 1998; Collie et al. 2000; Lambert et al. 2011; de Juan, 2012; Gislason et al. 2017; Cyrielle et al. 2020; Bromhall et al. 2022; McLaverty et al. 2020a, 2020b, 2021, 2023). The magnitude and type of disturbance mobile fishing gear incurs to benthic habitats is largely dependent on the type of gear deployed, the nature of the substrate fished, community of organisms present, and frequency of the disturbance. Most studies exploring the effects of mobile fishing gear have focused on the impacts and recovery of chronically trawled coarse-sediment continental-shelf fisheries globally including north Pacific (Agbayani et al. 2015; Ardron et al. 2007; Galand, 2011; Gale et al. 2022), north Atlantic (Schwinghamer et al. 1998; Freese et al. 1999; Prena et al. 1999; Collie et al. 2000; Kenchington et al. 2001), and Australia (Pitcher 2000; Schratzberger et al. 2002). Locally, research efforts in British Columbia (BC) have focused on offshore trawling in Hecate Strait and, specifically, the area of glass-sponge gardens (Malecha and Heifetz, 2017; Gale et al. 2022). Effects of prawn trapping on sponge reefs have also been investigated in Howe Sound (Clayton and Dennison, 2017). In comparison to exposed, offshore continental-shelf settings, protected B.C. inlets act as particle traps due to two-layer estuarine circulation patterns, resulting in a preponderance of low-mobility fine or compact sediment subjected to variations of geological processes. Relatively, few scientific studies have explored the effects of mobile gear on soft-bottom inshore habitats (e.g. Brylinsky 1994; Tuck et al. 1998; Sanchez et al. 2000). This study will assess potential trawling and trapping effects within a protected inshore BC inlet characterized by a sheltered low-energy oceanographic setting and a homogenous seabed consisting of a fine-silt texture.

After consultation with fishers and stock assessors and in consideration of the overall study design, Simoom Sound (SS) was chosen as a study site located in the Broughton Archipelago at the southern Central Coast of British Columbia (Figure 1). This study provides the first characterization of shrimp in SS and is part of a larger project assessing the effect of trawling (beam, otter) and trapping activities in Simoom Sound. For example, a parallel benthic grab survey was undertaken to characterize seabed attributes and infauna (meiofaunal) communities pre- and post-fishing operations (Sutherland et al. 2023). In addition, Ong et al. (2002) outlined various fishing gear catches sorted by length, weight, sex, and egg location of shrimp taxa, while Troffe et al. (2003) assessed damage to humpback shrimp (*Pandalus hypsinotus*) during fishing gear activities.



FIGURE 1: The location of Simoom Sound in the Broughton Archipelago situated in the southwestern mainland of British Columbia, Canada.

2.0 STUDY AREA

Simoom Sound is an elbow-shaped inlet located on the central coast of British Columbia's mainland that reaches into the Broughton Archipelago (Figure 1). More specifically, Simoom Sound ($50^{\circ} 49' 67''$ N; $126^{\circ} 29' 41.77''$ W) is located between Tribune Channel and Kingcome Inlet. The Sound consists of two channel segments joined to create a right-angle: 1) NW – SE channel orientation with a length of 3.3 kilometres (km), width of 0.9 km, and a depth range of 40 – 50 metres (m); and 2) NE – SW channel orientation with a length of 4.2 km, width of 0.7 km, and a depth range of 50 – 60 m. The average water depth within the field study area was approximately 50 m. A benthic grab survey located at the mid-point along the trawling and trapping transects (Figure 2) revealed a sediment texture comprised of high silt-clay content and water porosity, reflecting a depositional environment (Sutherland et al. 2023). Alternately, where the seabed met the base of the steep shoreline slope, the shoreline perimeter was made up of a coarse sandy gravel texture.

3.0 MATERIALS AND METHODS

The otter trawling, beam trawling, and trapping methods used in this study were representative of those employed by the commercial shrimp fishery in British Columbia at the time period associated with our work. Data on dimensions of the fishing gear and descriptions of the vessels deployed in the study are given elsewhere (Ong et al. 2002). A summary of the overall survey design, deployment of different fishing-gear types, and video methods are described below.

Three different commercial shrimping methods (otter trawl, beam trawl, trapping) were deployed to harvest shrimp in Simoom Sound during November 2000 (otter-trawling, trapping) and February 2001 (beam-trawling). Each fishing-gear type was assigned to a specific seafloor experimental block to avoid overlap between deployed fishing gear types and transects. Each experimental block included three parallel replicate transects of the seafloor characterised by a relatively uniform depth and sediment texture.

The replicate transects fished within a single experimental block and assigned to a specific fishing-gear type, were plotted on *Nobeltec Visual Navigation Suite 5.0* prior to the collection of the pre-trawl/trap benthic samples (Sutherland et al. 2023). A submersible camera attached to a epibenthic sled was towed one metre above the seabed to compare both shrimp and fish abundance before and after replicate transects were fished with the shrimp otter and beam trawls.

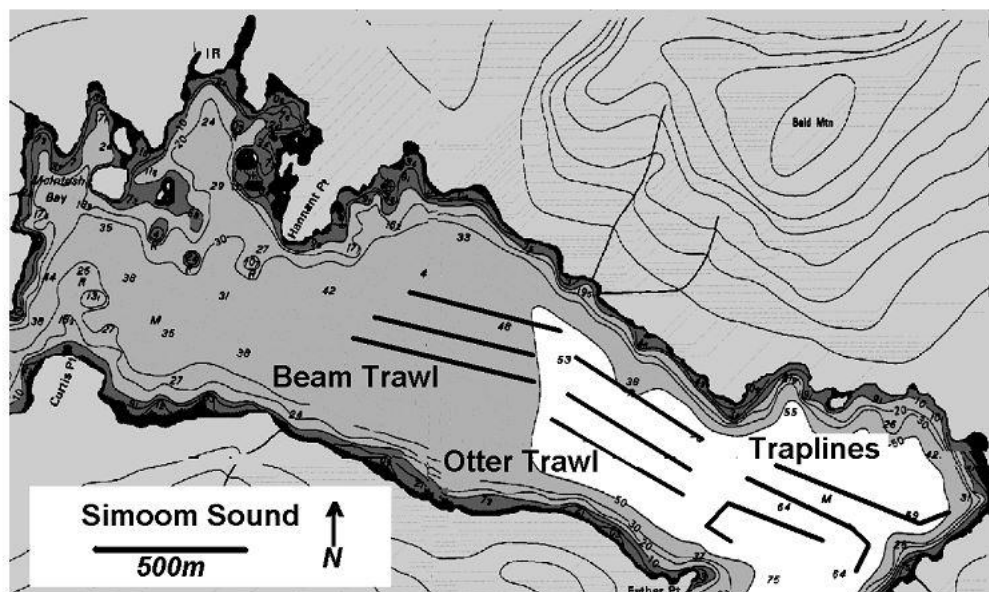


FIGURE 2: Locations of replicate survey transects for each fishing gear type, beam trawl, otter trawl, and trap-lines in Simoom Sound, British Columbia, Canada. Depth soundings are in metres.

Otter Trawl: The chartered commercial vessel (Summers Retreat) was equipped with both otter trawl and trapping gear to support these fishing activities. Otter trawls were conducted on each of the three pre-determined replicate transects in Simoom Sound on November 14, 2000 (Fig. 2). The lengths of the replicate otter-trawl transects were between 643 and 677 m, while the duration of the on-bottom fishing periods was between 10 and 13 minutes. The depths of the trawl transects ranged between 55 and 68 m. The coordinate readings of each trawl track was recorded from a *Furuno Navigator* dGPS at minute intervals inside the vessel's wheelhouse. See the Trap-Lines section for a description of the trap-line deployments.

Beam Trawl: Beam trawl surveys were supported by a chartered commercial shrimp vessel (Amethyst II) on February 22, 2000. Beam-trawling occurred on each of the three

pre-determined replicate transects located northwest of the otter-trawling experimental block (Figure 2). The lengths of the triplicate beam-trawl transects ranged between 539 and 690 m, while the duration of the on-bottom fishing periods ranged between 14 and 17 minutes. The water-depths of the trawl transects ranged between 46 and 58 m. The coordinate readings of each trawl track were plotted using dGPS readings every minute from a hand-held Trimble ProXR.

Trap-Lines: Shrimp were collected by deploying trap-lines set by the otter trawl vessel between November 15 – 16, 2000. Approximately, 40 traps were set on each replicate line that varied between 558 to 660 m in length (Figure 2). An additional 20 traps were set on a line outside each of the experimental lines, since as the length of the ground rope for the trap gear exceeded the length of the lines. The depths of the trap-line transects ranged between 62 to 75 m. A lead anchor connected by a buoy, was set out when the end of the line was reached. The replicate trap-lines were laid down twice over two days between November 15 and 16, 2000, and remained submerged for approximately 6 hours, during the day, and 17 hours overnight. Traps were baited with handfuls of approximately equally-sized cut-up herring and shiner perch, which were collected on site from the trawling experiments, and salmon fish-feed pellets. Each trap had dimensions of 76.2 x 30.5 x 71.1 cm; a stretch mesh (45.3 mm) surrounding the trap, and a weight of 1.4 kg. The groundline rope was made up of a hardened polypropylene (width: 0.8 cm, 5116 thin) attached to rock anchors (est. 9 kg) to secure the marker buoys.

3.1 SHRIMP VIDEO SURVEYS

Seabed video surveys were carried out on fishing transects before and after both otter and beam trawling activities to assess shrimp abundance under these scenarios (Otter-Trawling: Tables 1-6; Beam-Trawling: Tables 7-12). Alternately, the replicate seabed video-surveys were completed only before the trapline deployment, given the inability to track the potential seabed disturbance associated with trapline retrieval (Trapping: Tables 13-15). A support vessel deployed a towed submersible video-camera at height of 1-m above the seabed along each fishing transect. This video camera, mounted on an epibenthic sled, was used to capture a continuous video survey along each trawl and trap replicate transects. The camera apparatus consisted of a 9.5-m 300 CCD video camera with a sensitivity of two Lux, supported by two five-watt halogen lamps fitted with tungsten filaments. Two ruby lasers were mounted 5.7 cm apart on either side of the camera to provide a scale for size calibration.

The video transect start and end points were matched with the trawl touch-down and lift-off locations for the on-bottom trawling transect. The duration of the video survey ranged between 12-14 minutes. Each video transect was divided into segments defined by 4 seconds of video time. Each segment area is based on a length (swath) and width (diameter) that was typically 4.5 m and 0.5 m, respectively. The segment dimensions were calibrated by the average length of representative shrimp observed in the trawl catch. In addition, the distance (5.7 cm) between the tandem lasers attached to the video camera provided a calibration for the field diameter. Twenty randomly-selected video segments located along the video transect were analyzed for faunal abundance. Taxa identification was analyzed to the lowest taxonomic category possible and shrimp abundance was estimated by counting the number of organisms visible within a calculated area of seafloor (segment). Anguilliform represents fish with a long, slender body typified by eels that travel by anguilliform motion.

4.0 RESULTS

TABLE 1: Shrimp and fish abundance prior to otter-trawling along transect-1 in Simoom Sound on November 14, 2000.

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Angulliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
1	n/a	16:20	2	9						0.5	4.5	0	20
		16:22	4	8									
		16:24	5	8									
2		16:38	1	13									
		16:40	2	3	1								
		16:42	2	8									
3		16:56	1	7									
		16:58	1	9									
		17:00	1	7									
4		17:14	1	6	1	1				0.5	4.5	5	30
		17:16	1	6									
		17:18		8	1								
5		17:32	1	8	1								
		17:34	2	4	2								
		17:36	2	9									
6		17:50	4	15									
		17:52	3	11	2								
		17:54	3	9	1								
7		18:08	3	13	1					0.5	4.5	10	30
		18:10	1	13									
		18:12		7	2								
8		18:54	2	6	2				Camera near bottom				
		18:56	3	8	1			Increase in trolling speed					
		18:58	5	9	1								
9		20:47	2	7					Camera near bottom				
		20:49		2	1								
		20:51	4	9									
10		21:30	4	8					Camera near bottom	0.3	6.0	0	20
		21:32	4	7	1								
		21:34	2	5									
11		25:50	2	12									
		25:52	3	9									
		25:54	3	5	2								
12		26:08	2	8	1								
		26:10	3	8									
		26:12	6	5	1								

TABLE 1: (Continued)

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
13		26:26	5	7	1		1			0.6	4.5	10	20
		26:28	2	9	1								
		26:30	2	13	1								
14		26:44	4	7	2								
		26:46	3	2	3								
		26:48	3	7	1								
15		27:02	1	8	2								
		27:04	4	6									
		27:06	3	10									
16		27:20		6	1				Camera near bottom	0.5	4.5	10	20
		27:22	6	6	2								
		27:24	4	6									
17		27:38	4	5	3								
		27:40	3	8									
		27:42	2	8									
18		27:50	3	6	2				Poor visibility				
		27:52	2	8									
		27:54	1	9									
19		28:06	2	7	2			1		0.7	4.5	0	20
		28:08	5	8	1								
		28:10	4	5	3								
20	n/a	28:30	4	7	1				Poor visibility				
		28:32	4	10									
		28:34	3	11									

TABLE 2: Shrimp and fish abundance prior to otter-trawling along transect 2 in Simoom Sound on November 14, 2000.

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguilliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
1	14:41:08 14:41:10 14:41:12	0:08		1	1	2			Camera near bottom Poor visibility 0:12-0:14				
		0:10	4	12	1								
		0:12	2	15									
2		1:06	2	1				Poor visibility in segment	0.6	4.5	10	30	
		1:08	3	5	2								
		1:10	3	7	1								
3		2:18	4	10	1			Poor visibility in segment					
		2:20	4	9									
		2:22	5	12	1								
4		2:56	4	8	1			Poor visibility in segment					
		2:58	4	6	1								
		3:00	5	11									
5		3:55	1	5			1	Camera near bottom Poor visibility in segment	0.6	6.0	10	20	
		3:57	4	6									
		3:59	3	13									
6		4:22	3	10	1			Poor visibility in segment					
		4:24	3	3	1								
		4:26	5	9	1								
7		4:44	3	8	1			Poor visibility in segment					
		4:46	2	5	1								
		4:48	5	3	2								
8		5:01	2	6	1			Camera near bottom Poor visibility in segment	0.6	6.0	0	30	
		5:03	4	7	1								
		5:05	3	7	2	1							
9		5:13	2	8				Poor visibility in segment Camera near bottom 5:15-5:16					
		5:15	1	1									
		5:17	2	5									
10		5:24	4	8				Camera near bottom Ratfish (<i>Hydrolagus collie</i>) nearby					
		5:26	2	9	1	1							
		5:28	1	7	2								
11		5:44	2	8	1				0.7	4.5	5	10	
		5:46	1	8	3								
		5:48	3	5									
12		6:23	1	8	2			Camera near bottom 6:27-6:29					
		6:25	2	10			1						
		6:27	1	6									

TABLE 2: (Continued)

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
13		6:43	2	12	1		2		Poor visibility 6:47-6:49				
		6:45	4	7	1								
		6:47	4	8									
14		7:00	1	4	2			4		0.5	6.0	10	30
		7:02	1	3	1								
		7:04	2	5	3								
15		9:37	5	12	2				Poor visibility in segment				
		9:39	3	11	1								
		9:41	4	8	2								
16		9:50	1	11	1			1	Poor visibility 9:54-9:56				
		9:52	3	6	2								
		9:54	3	10									
17		10:40	2	14	1		1		Poor visibility 10:40-10:42	0.6	4.5	0	10
		10:42	5	13	3								
		10:44	5	15	1								
18		11:01	1	10	1				Poor visibility in segment				
		11:03	3	11	1								
		11:05	2	12	1								
19		11:30	3	5	1		1		Camera near bottom 11:30-36				
		11:32	4	5	1								
		11:34	4	8	3								
20	14:52:46	11:56	3	14	1				Poor visibility in segment	0.6	6.0	10	30
	14:52:48	11:58	3	11	2								
	14:53:00	12:00	2	14	2								

TABLE 3: Shrimp and fish abundance prior to otter-trawling along transect 3 in Simoom Sound on November, 14, 2000.

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect segment dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguilliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
1	15:28:42	1:42	7	3						0.5	4.5	0	20
	15:28:44	1:44	5	4	1			1					
	15:28:46	1:46	6	4	1								
2		2:13	4	9					Visibility poor 2:17-2:19				
		2:15	1	3	2								
		2:17	3	4									
3		3:32	3	7									
		3:34	3	10	4								
		3:36	2	9	2								
4		4:20	2	5	2					0.7	6.0	10	40
		4:22	4	4	3								
		4:24	4	11	3								
5		5:10	1	4	2								
		5:12	3	5									
		5:14	4	7	2								
6		6:12	2	9									
		6:14	1	9	2								
		6:16	1	10	1	1							
7		6:20	5	6				1 1	Poor visibility in segment Camera off bottom	0.7	6.0	10	40
		6:22	5	6									
		6:24	6	2	1								
8		7:04	4	3				2	Camera near bottom 7:04-7:06				
		7:06	4	4	1								
		7:08	5	3	1								
9		7:56	4	5				1	Poor visibility 8:00-8:02 Camera off bottom 8:00-8:02				
		7:58	3	4									
		8:00	3	12									
10		8:42	5	5					Poor visibility in segment	0.7	6.0	10	40
		8:44	3	5									
		8:46	3	9									
11		9:00	1	4	1			1	Camera near bottom				
		9:02		2									
		9:04	1	5	1								
12		9:30	2	15	1								
		9:32	9	16	1								
		9:34	16	15	1								

TABLE 3: (Continued)

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera Visibility & Seabed Observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
13		10:00	6	5					Poor visibility 10:04-10:06	0.6	4.5	2.5	30
		10:02	12	5									
		10:04	7	3	1								
14		10:30	6	2									
		10:32	7	6									
		10:34	1	4	2								
15		11:00	12	13	2			1					
		11:02	3	12	3								
		11:04	7	13	2								
16		12:00	4	6	1				0.7	6.0	10	30	
		12:02	7	3									
		12:04	11	3									
17		13:05	4	5				Camera near bottom					
		13:07	7	4									
		13:09	2	4	2								
18		14:20	9	10				Poor visibility 14:24-14:26					
		14:22	5	10	1								
		14:24	17	4	1								
19		15:00	6	7	1				0.6	6.0	5	30	
		15:02	13	5									
		15:04	7	8									
20	15:43:30	16:30	7	6	1			1	Poor visibility 16:34-16:36				
	15:43:32	16:32	4	7	1								
	15:43:34	16:34	16	3									

TABLE 4: Shrimp and fish abundance after otter-trawling along transect 1 in Simoom Sound on November 14, 2000.

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
1	8:34:22	4:44	1	12						0.8	4.5	20	30
	8:34:24	4:46	2	4									
	8:34:26	4:48		7									
2		5:54	4	5	1			Camera near bottom - scale/size references altered	n/a	n/a	n/a	n/a	
		5:56	2	5	1								
		5:58	2	2	1								
3		7:27	1	7	1			Camera near bottom	n/a	n/a	n/a	n/a	
		7:29		2	1								
		7:31	1	6	1								
4		8:30	4	6			1	Poor visibility in this interval	0.8	4.5	15	40	
		8:32	3	7									
		8:34	1	4									
5		10:14	3	8			1	Camera near bottom	0.5	3.6	20	30	
		10:16		3									
		10:18			1								
6		12:14	18	3			1	Boulders, reef area, variable bottom structure	n/a	n/a	n/a	n/a	
		12:16	14	3									
		12:18	8	3									
7		13:16	1	6					0.7	4.5	10	20	
		13:18	3	5	2								
		13:20	2	5									
8		14:30	2	1	2		1	Camera near bottom	n/a	n/a	n/a	n/a	
		14:32	1	1	1								
		14:34	1	5	1								
9		16:10	1	3	3				0.5	3.6	10	40	
		16:12	2	4									
		16:14	1	5	2								
10		17:28	3	3	1			Camera near bottom	n/a	n/a	n/a	n/a	
		17:30	2	5	3								
		17:32		4	2								
11		19:12	1	9				Camera near bottom	n/a	n/a	n/a	n/a	
		19:14		4	2								
		19:16	2	6									
12		20:38		5	1		2	Poor visibility in this interval	0.5	3.6	20	40	
		20:40		4	2								
		20:42		6									

TABLE 4: (Continued)

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidae</i> & <i>Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
13		21:50	1	4	2	2			Uneven substrate	n/a	n/a	n/a	n/a
		21:52	2	4									
		21:54	1	5									
14		23:18	1	4					0.5	3.6	10	30	
		23:20	2	2									
		23:22		6									
15		24:58	2	4	1				n/a	n/a	n/a	n/a	
		25:00	2	5	1								
		25:02		2	3								
16		26:24	1	4					n/a	n/a	n/a	n/a	
		26:26	2	4	1								
		26:28		3	4	1							
17		27:47	3	5	1			Uneven substrate	0.6	4.5	20	30	
		27:49	2	4	3								
		27:51	2	5									
18		29:32	1	3		1		Camera near bottom	n/a	n/a	n/a	n/a	
		29:34		3									
		29:36	3	6	1								
19		30:38	4	3			2		n/a	n/a	n/a	n/a	
		30:40	8	3	1								
		30:42	6	4	2								
20	9:01:08	31:30	3	8	1				0.6	3.6	10	40	
	9:01:10	31:32	3	6	1								
	9:01:12	31:34	5	2									

TABLE 5: Shrimp and fish abundance after otter-trawling along transect 2 in Simoom Sound in November 14, 2000.

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
1	9:27:40	1:40	12	1	1					10.6	14.5	10	20
	9:27:42	1:42	8	1									
	9:27:44	1:44	6	8	1								
2		2:10	9	6	6					n/a	n/a	n/a	n/a
		2:12	10	4	2								
		2:14	10	7	2		1						
3		2:44		9	2					n/a	n/a	n/a	n/a
		2:46	1	5	2								
		2:48	2	10	1								
4		3:18	3	8	1	1			Next to trawl line	0.7	4.5	10	20
		3:20	4	14									
		3:22	6	6									
5		3:40	9	9	2					n/a	n/a	n/a	n/a
		3:42	2	3	1		1						
		3:44	2	6									
6		4:10	1	8		1				n/a	n/a	n/a	n/a
		4:12		2									
		4:14											
7		5:14	1	4					Near to trawl line	0.5	4.5	10	20
		5:16	1										
		5:18	5	10									
8		5:58	1	5	1				Camera near bottom	n/a	n/a	n/a	n/a
		6:00	2	7	1				Visibility poor from 5:20-5:58				
		6:02	5	8									
9		6:10	2	6	1					n/a	n/a	n/a	n/a
		6:12	1	3	1								
		6:14	7	8									
10		6:20	1	14	1					0.7	4.5	20	30
		6:22	6	8									
		6:24	1	8									
11		6:50	1	8		1	1			n/a	n/a	n/a	n/a
		6:52	2	2									
		6:54		2	1								
12		7:16		5	3					n/a	n/a	n/a	n/a
		7:18	6	3	2	1							
		7:20	1	5	1								

TABLE 5: (Continued)

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	Zorcidae & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
13		7:44 7:46 7:48	8 1 3	4 3 5					Poor visibility	0.6	3.6	10	30
14		8:38 8:40 8:42		6 7 4	2 1			1	Visibility poor from 8:38-8:40 and from 8:42-8:44	n/a	n/a	n/a	n/a
15		8:50 8:52 8:54	5 1 6	4 3 3	1 1					n/a	n/a	n/a	n/a
16		9:00 9:02 9:04	6 7 2	4 3 3		1				0.8	4.5	10	20
17		9:14 9:16 9:18	1 1 4	6 4 7	1 1				Segment visibility poor, much of video footage from 9:20-10:00 could not be used, camera near bottom	n/a	n/a	n/a	n/a
18		10:00 10:02 10:04	1 5 4	6 7 3	1 1				From 10:09-11:36 video off 11:37-13:00 no suitable footage of shrimp available for analysis	n/a	n/a	n/a	n/a
19		13:04 13:06 13:08	10 2 10	8 15 8	2 3 3	1 1				0.6	4.5	10	30
20	9:40:26 9:40:28 9:40:30	14:26 14:28 14:30	3 3	5 2 2					Camera near bottom	n/a	n/a	n/a	n/a

TABLE 6: Shrimp and fish abundance after otter-trawling along transect 3 in Simoom Sound in November 14, 2000.

Transect Segment	Time of sampling	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)		
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	<i>Zorcidæ & Anguilliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max	
1	10:17:32	3:26	3	5	3			1	1	Poor visibility in this segment	n/a	n/a	n/a	n/a
	10:17:34	3:28	7	3	1			1						
	10:17:36	3:30	5	5	1									
2	4:01	4:01	10	1	1				1		0.6	3.6	10	30
	4:03	4:03	2	4	4	1								
	4:05	4:05	4	6	1									
3	4:18	4:18	2	10							n/a	n/a	n/a	n/a
	4:20	4:20	4	6	1			1						
	4:22	4:22	4	8	1									
4	4:52	4:52	4	6	1					Poor visibility in this segment	n/a	n/a	n/a	n/a
	4:54	4:54	3	7										
	4:56	4:56	6	4										
5	5:26	5:26		5	1						0.7	4.5	5	10
	5:28	5:28	5	4	1			1						
	5:30	5:30	2	8	1									
6	5:54	5:54	1	5						Poor visibility in this segment	n/a	n/a	n/a	n/a
	5:56	5:56	8	6										
	5:58	5:58	9	3										
7	6:10	6:10		11						Camera near bottom from 6:10-6:14 Poor visibility from 6:14-6:16	n/a	n/a	n/a	n/a
	6:12	6:12	1	10	2									
	6:14	6:14		7										
8	6:56	6:56	2	11							0.7	4.5	10	20
	6:58	6:58	6	7	2			1						
	7:00	7:00	1	2	2									
9	7:24	7:24	5	10	1					Poor visibility in this segment	n/a	n/a	n/a	n/a
	7:26	7:26	8	6	1									
	7:28	7:28	5	10	3									
10	7:45	7:45	3	9	1						n/a	n/a	n/a	n/a
	7:47	7:47	11	6	2									
	7:49	7:49	12	1				1						
11	8:30	8:30	1	7	1					Poor visibility in this segment	0.6	3.6	10	20
	8:32	8:32	8	4										
	8:34	8:34	11	2										
12	8:54	8:54	1	7		1					n/a	n/a	n/a	n/a
	8:56	8:56	2	8	1									
	8:58	8:58	3	2										

TABLE 6: (Continued)

Transect Segment	Actual Time	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	Zorcidae & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
13		9:14	7	6	1			1		n/a	n/a	n/a	n/a
		9:16	3	5									
		9:18	9	2			1						
14		9:37	1	7	2					0.7	3.6	10	20
		9:39	7	4									
		9:41	4	6									
15		10:18	3	6	2	1			Uneven bottom terrain Near trench Camera near bottom 10:25-10:58	n/a	n/a	n/a	n/a
		10:20	5	9	2								
		10:22	7	7	1								
16		11:20	7	9					Poor visibility from 10:58-11:18	n/a	n/a	n/a	n/a
		11:22	3	6									
		11:24	4	9									
17		12:10	1	5	2				Camera near bottom	0.5	4.5	5	10
		12:12	4	6	2								
		12:14	1	7	2	1							
18		13:20	2	9					Camera near bottom from 13:23-13:25	n/a	n/a	n/a	n/a
		13:22	3	4	1								
		13:24	1	4									
19		13:58	4	7	1	1	1	1		n/a	n/a	n/a	n/a
		14:00	2	6	1	1							
		14:02	10	3	1								
20	10:25:33	14:52	2	13	3					0.7	4.5	10	20
	10:25:35	14:54	3	9	1								
	10:25:37	14:56	4	10	1								

TABLE 7: Shrimp and fish abundance prior to beam-trawling along transect 1 in Simoom Sound in February, 22, 2001.

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start Transect	Finish Transect	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. suckleyi</i> <i>C. crangon</i>	Unidentified	Flatfish	<i>Zorcidae</i> & <i>Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
1	0:22:50	0:24:00	6	0	0	2	1	4	Poor visibility 23:20-23:28	0.48	32.10	n/a	n/a
2	0:24:01	0:25:00	0	0	0	1	1	6		n/a	n/a	n/a	n/a
3	0:25:01	0:26:00	0	0	0	1	0	0	Camera off bottom 25:02-25:53 On bottom 26:00-26:03	n/a	n/a	n/a	n/a
4	0:26:01	0:27:00	1	0	0	2	0	7	On bottom 26:07-26:13, 26:35-26:36, 26:43-26:45, 27:00-27:06 Debris on camera lens 26:14-26:20; Clam or gas vents 26:23	n/a	n/a	n/a	n/a
5	0:27:01	0:28:00	2	0	0	3	2	5	On bottom 27:00-27:06, 27:14-27:15,	0.48	n/a	n/a	10
6	0:28:01	0:29:00	0	0	0	2	1	5		n/a	n/a	n/a	n/a
7	0:29:01	0:30:00	0	0	0	0	0	1	Camera off bottom for extended period -	n/a	n/a	n/a	n/a
8	0:30:01	0:31:00	0	0	0	0	0	1	Camera off bottom frequently 30:14-30:39 30:40-31:02	n/a	n/a	n/a	n/a
9	0:31:01	0:32:00	3	0	0	1	1	4	On bottom 31:03-31:05, 31:09-31:18, 31:24-31:25, 31:41-31:43, 31:56-32:08 Off bottom 31:18-31:23	0.43	n/a	10	20
10	0:32:01	0:33:00	0	0	0	2	0	1	On bottom 32:12-32:23 Camera off bottom 32:27-32:34, 32:57-33:03	n/a	n/a	n/a	n/a

TABLE 7: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C.=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	<i>Zorcidae</i> & <i>Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
11	0:33:01	0:34:00	1	1	0	1	2	8	On bottom 33:17-33:31 Camera off bottom 33:32-33:38	n/a	n/a	-	80
12	0:34:01	0:35:00	2	0	0	2	3	6	Debris 34:24-34:30	0.31	21.40	n/a	n/a
13	0:35:01	0:36:00	2	0	4	4	0	7	On bottom 35:05-35:07, 35:12-35:14	0.33	23.85	-	50
14	0:36:01	0:37:00	1	0	0	1	1	4	Camera off bottom 36:23-36:29	n/a	n/a	n/a	n/a
15	0:37:01	0:38:00	1	0	1	2	0	2	On bottom 37:00-37:02, 37:10-37:11, 37:17-:19, 37:28-37:31, 37:38-37:43, 37:57-37:59	n/a	n/a	n/a	n/a
16	0:38:01	0:39:00	0	0	0	0	1	3	On bottom 38:10-38:27; Camera off bottom 38:45-38:56	n/a	n/a	n/a	n/a
17	0:39:01	0:40:00	4	0	0	2	0	8	Plume of debris 39:04, 39:09-39:10 On bottom 39:15-39:17, 39:20-39:33 Poor visibility 39:34-39:49	0.43	n/a	10	100
18	0:40:01	0:41:00	4	0	0	1	2	12		0.31	21.40	-	70

TABLE 7: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. suckleyi</i> & <i>C. crangon</i>	Unidentified	Flatfish	<i>Zorcidae</i> & <i>Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
19	0:41:01	0:42:00	4	0	2	0	1	6	Plume of debris 41:44-41:46	n/a	n/a	-	10
20	0:42:01	0:43:00	1	2	1	2	2	5	On bottom 42:13-42:20, 42:51-43:05 Poor visibility 42:21-42:29	n/a	n/a	10	20
21	0:43:01	0:44:00	1	0	0	0	1	5	Debris on camera lens 43:05-43:15 Camera off bottom 43:15-43:28	n/a	n/a	n/a	n/a
22	0:44:01	0:45:00	2	0	0	2	1	6		0.39	24.08	n/a	n/a
23	0:45:01	0:46:00	3	1	0	0	2	5		0.27	n/a	n/a	n/a
24	0:46:01	0:47:00	4	3	0	2	0	4		0.33	19.03	-	60
25	0:47:01	0:48:00	1	0	1	4	0	6		n/a	n/a	n/a	n/a
26	0:48:01	0:48:35	0	14	0	1	0	1		n/a	n/a	15	35

TABLE 8: Shrimp and fish abundance prior to beam-trawling along transect 2 in Simoom Sound in February 22, 2001.

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count			Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	<i>Zorridae</i> & <i>Anguliform</i>	Field Diameter (m)		Swath Length (m)	Min	Max	
1	0:55:39	0:57:00	0	24 approx.	12 approx.	144 approx.	0	3	Camera covered 55:39-55:47 Camera lens partially obscured by leaf - 55:40-56:30	0.49	n/a	5	15	
2	0:57:01	0:58:00	n/a	n/a	n/a	n/a	n/a	n/a	Poor visibility - camera lens covered & fully obscured by leaf 56:31-58:55	n/a	n/a	n/a	n/a	
3	0:58:01	0:59:00	n/a	n/a	n/a	n/a	n/a	n/a	Camera on bottom 58:53-59:26	n/a	n/a	n/a	n/a	
4	0:59:01	1:00:00	0	0	0	0	1	3	Camera off bottom 59:27-59:40 On bottom 59:51-1:00:06	n/a	n/a	n/a	n/a	
5	1:00:01	1:01:00	2	0	1	10 approx.	0	7	Poor visibility 1:00:07-1:00:22	0.48	27.51	n/a	n/a	
6	1:01:01	1:02:00	0	0	0	2	0	5	On bottom (lens covered) 1:01:47-1:02:44	n/a	n/a	n/a	n/a	
7	1:02:01	1:03:00	n/a	n/a	n/a	n/a	n/a	n/a	Camera off bottom 1:02:45-1:03:50 No useable footage in segment 7	n/a	n/a	n/a	n/a	
8	1:03:01	1:04:00	0	0	0	2	0	0	10 seconds of visible footage in segment 8 1:03:50-1:04:00	n/a	n/a	n/a	n/a	
9	1:04:01	1:05:00	8	0	0	7	3	5	Poor visibility 1:04:23-1:04:29;	0.43	19.26	10	30	

TABLE 8: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. Hysinotus</i>	<i>P. borealis</i>	<i>E. sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	<i>Zorcidae</i> & <i>Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
10	1:05:01	1:06:00	4	0	0	0	1	5		n/a	n/a	n/a	n/a
11	1:06:01	1:07:00	1	2	1	1	2	6		0.39	n/a	n/a	n/a
12	1:07:01	1:08:00	7	0	1	2	4	6	On bottom 1:07:59-1:08:06	0.48	21.40	10	60
13	1:08:01	1:09:00	13	3	9	6	0	8	poor visibility. Log @ 1:08:52 Hit log 1:08:52 Off bottom 1:08:53-1:08:59	0.43	19.26	5	20
14	1:09:01	1:10:00	0	2	0	0	1	6	On bottom 1:09:42-1:09:57	n/a	n/a	n/a	n/a
15	1:10:01	1:11:00	2	0	0	0	1	1	Impact with log or sandy ridge 1:10:18 On bottom (lens covered) 1:10:18-1:10:53	n/a	n/a	n/a	n/a
16	1:11:01	1:12:00	n/a	n/a	n/a	n/a	n/a	n/a	Camera off bottom 1:10:54-1:11:40, and 1:11:55-1:12:04 On bottom 1:11:41-1:11:55	n/a	n/a	n/a	n/a
17	1:12:01	1:13:00	2	0	0	1	2	1	On bottom 1:12:12-1:12:14, 1:12:18-1:12:20 Camera off bottom 1:12:24-1:12:40	n/a	n/a	n/a	n/a
18	1:13:01	1:14:00	n/a	n/a	n/a	n/a	n/a	n/a	On bottom 1:12:58-1:13:35 Camera off bottom 1:13:35-1:14:40	n/a	n/a	n/a	n/a

TABLE 8: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	<i>Zorcidae</i> & <i>Anguliform</i>		Field Diameter (m)	Swath Length (m)	Min	Max
19	1:14:01	1:15:00	1	0	0	0	0	0	On bottom (lens covered) 1:14:41-1:17:01 1 sec visible footage in segment 19 - 1:14:40	n/a	n/a	n/a	n/a
20	1:15:01	1:16:00	n/a	n/a	n/a	n/a	n/a	n/a	No useable footage in segment 20	n/a	n/a	n/a	n/a
21	1:16:01	1:17:00	n/a	n/a	n/a	n/a	n/a	n/a	No useable footage in segment 21	n/a	n/a	n/a	n/a
22	1:17:01	1:17:36	n/a	n/a	n/a	n/a	n/a	n/a	Camera off bottom 1:17:01 - end of line No useable footage in segment 22	n/a	n/a	n/a	n/a

TABLE 9: Shrimp and fish abundance prior to beam-trawling along transect 3 in Simoom Sound in February 22, 2001.

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-Shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E.sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	Zorcidæ & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
1	0:08:00	0:09:00	5	0	0	1	3	8	Poor visibility 8:30-9:02	0.43	27.51	0	50
2	0:09:01	0:10:00	4	0	0	2	2	4	Poor visibility 9:19-9:32	0.48	27.51	n/a	n/a
3	0:10:01	0:11:00	1	0	0	0	1	1	On bottom (lens cover) 10:34-10:45 Camera off bottom 10:45-11:34	n/a	n/a	n/a	n/a
4	0:11:01	0:12:00	1	0	0	0	1	2	On bottom 11:49-11:51 26 sec:visible footage in segment 4	n/a	32.10	n/a	n/a
5	0:12:01	0:13:00	4	0	0	2	3	7	Fish 12:07, 12:54, 13:00 Poor visibility 12:28-12:58;	0.48	21.40	-	60
6	0:13:01	0:14:00	3	0	0	2	1	9	Debris/shrimp/crab	0.39	24.08	n/a	n/a
7	0:14:01	0:15:00	5	1	0	2	0	9		0.39	21.40	10	70
8	0:15:01	0:16:00	0	0	0	0	0	4	On bottom 15:04-15:05, 15:22-15:37 Camera off bottom 15:41-15:54	n/a	n/a	n/a	n/a
9	0:16:01	0:17:00	2	0	0	0	2	8		0.36	27.51	-	90

TABLE 9: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	Zorcidæ & Angulliform		Field Diameter (m)	Swath Length (m)	Min	Max
10	0:17:01	0:18:00	3	0	0	0	1	3	Camera off bottom 17:48-18:22	n/a	n/a	n/a	n/a
11	0:18:01	0:19:00	1	1	0	1	0	0	Camera off bottom 18:35-19:34 13 sec of visible footage in segment 11	n/a	n/a	-	30
12	0:19:01	0:20:00	1	1	0	0	1	3	26 sec of visible footage in segment 12	0.48	27.51	-	10
13	0:20:01	0:21:00	1	1	0	0	2	3	On bottom (lens covered) 20:33-20:58 Visible footage for 27 seconds.	0.54	n/a	n/a	n/a
14	0:21:01	0:22:00	n/a	n/a	n/a	n/a	n/a	n/a	Camera off bottom for extended period 20:58-23:07 No useable footage in segment 14	n/a	n/a	n/a	n/a
15	0:22:01	0:23:00	n/a	n/a	n/a	n/a	n/a	n/a	No useable footage in segment 15	n/a	n/a	n/a	n/a
16	0:23:01	0:24:00	3	0	1	4	1	7	Poor visibility 23:17-23:57	n/a	n/a	10	40
17	0:24:01	0:25:00	3	0	0	0	4	6	Poor visibility 24:16-24:23	n/a	38.52	n/a	n/a
18	0:25:01	0:26:00	7	1	1	0	1	9	Shrimp/debris 25:39	0.36	27.51	-	90
19	0:26:01	0:27:00	4	2	0	0	4	3	Shrimp/debris 26:12 Poor visibility 26:38-27:30	n/a	32.10	-	10
20	0:27:01	0:27:30	0	0	0	0	0	0	Poor visibility	n/a	n/a	n/a	n/a

TABLE 10: Shrimp and fish abundance after beam-trawling along transect 1 in Simoom Sound on February 22, 2001.

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	Zorcidae & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
1	0:06:45	0:08:00	0	0	0	2	2	11	Camera off bottom 7:09-7:23 Visibility poor 7:24-7:59	n/a	n/a	n/a	n/a
2	0:08:01	0:09:00	0	1	0	0	1	9	Bottom obscured by plume of debris 8:54-9:00	0.37	33.30	n/a	n/a
3	0:09:01	0:10:00	1	0	1	2	1	8	Bottom obscured by plume of debris 9:01-9:08 Log or fish 9:1	0.43	38.52	n/a	n/a
4	0:10:01	0:11:00	1	1	0	1	3	10		n/a	n/a	n/a	n/a
5	0:11:01	0:12:00	0	0	0	0	2	5	Camera off bottom 11:21-12:00 Poor visibility 11:18-11:20	n/a	n/a	n/a	n/a
6	0:12:01	0:13:00	7	0	0	0	0	10	Camera off bottom 12:00-12:28 Poor visibility 12:28-12:50 Animal in hole 12:48	0.54	38.52	40	80
7	0:13:01	0:14:00	7	0	1	2	2	11	Poor visibility 13:50-14:00	0.48	38.52	n/a	n/a
8	0:14:01	0:15:00	6	1	0	4	4	8	Poor visibility, object in periphery may be shrimp	n/a	n/a	n/a	n/a
9	0:15:01	0:16:00	8	0	0	1	4	14		0.43	38.52	60	90
10	0:16:01	0:17:00	5	14 approx.	30 approx.	2	4	11		0.43	38.52	5 4	10 7
11	0:17:01	0:18:00	7	1	0	1	1	12		n/a	n/a	n/a	n/a

TABLE 10: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	<i>E. sucklei</i> & <i>C. crangon</i>	Unidentified	Flatfish	Zorcidae & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
12	0:18:01	0:19:00	9	1	0	1	1	19		0.39	38.52	5	70
13	0:19:01	0:20:00	4	0	0	0	3	11		n/a	n/a	-	60
14	0:20:01	0:21:00	1	0	0	3	1	11	Poor visibility 20:25-20:37	n/a	n/a	n/a	n/a
15	0:21:01	0:22:00	2	1	1	0	1	14	Camera in ground 21:43 & 21:49 Poor visibility 21:50-21:58	n/a	n/a	n/a	n/a
16	0:22:01	0:23:00	8	6	3	0	0	12		0.43	33.30	10	40
17	0:23:01	0:24:00	6	1	3	0	0	5	Trench area	0.36	24.08	n/a	n/a
18	0:24:01	0:25:00	3	12	29 approx.	0	0	9	track, poor visibility 24:32-24:44	n/a	n/a	5 -	10 7
19	0:25:01	0:26:00	2	0	3	0	2	9		0.43	32.10	n/a	n/a
20	0:26:01	0:27:00	3	0	2	0	1	9	Camera ascending 26:50	0.43	38.52	20	50

TABLE 11: Shrimp and fish abundance after beam-trawling along transect 2 in Simoom Sound in February 22, 2001.

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	Eualid & Crangon	Unidentified	Flatfish	Zorcidae & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
1	0:28:11	0:29:00	2	0	0	0	2	11		n/a	n/a	n/a	n/a
2	0:29:01	0:30:00	5	0	0	1	2	16	Poor visibility 29:44-29:46	0.39	38.52	40	50
3	0:30:01	0:31:00	1	2	0	0	1	18		0.33	32.10	n/a	n/a
4	0:31:01	0:32:00	4	0	0	1	3	8		0.39	32.10	n/a	n/a
5	0:32:01	0:33:00	0	0	0	1	0	12		n/a	n/a	n/a	n/a
6	0:33:01	0:34:00	2	0	0	2	1	11		n/a	n/a	n/a	n/a
7	0:34:01	0:35:00	2	0	0	1	4	15	Trench area 34:30-34:40 Bottom obscured by debris 34:41-44	0.36	32.10	n/a	n/a
8	0:35:01	0:36:00	1	0	0	0	1	8	Trench area 35:23-35:26 Poor visibility 35:26-35:32;Trench area 35:23-35:26 Poor visibility 35:26-35:32	n/a	n/a	n/a	n/a
9	0:36:01	0:37:00	4	0	0	2	0	7	On bottom 36:16-36:17	n/a	n/a	50	60
10	0:37:01	0:38:00	6	0	0	2	1	3	On bottom 37:28-37:33 Camera off bottom 37:34-37:43	0.33	29.63	20	70
11	0:38:01	0:39:01	2	0	0	2	1	9	On bottom 38:46-38:48 Camera off bottom 38:49-38:52	n/a	n/a	n/a	n/a

TABLE 11: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	Eualid & Crangon	Unidentified	Flatfish	Zorcidæ & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
12	0:39:01	0:40:00	2	0	0	0	0	3	Camera off bottom 39:04-39:29	n/a	n/a	n/a	n/a
13	0:40:01	0:41:00	4	1	1	1	1	9		0.43	38.52	-	70
14	0:41:01	0:42:00	3	0	0	2	2	11	Large plume of debris 41:38-41:40	n/a	n/a	40	50
15	0:42:01	0:43:03	0	0	0	0	0	6	Shrimp in hole 42:03	n/a	n/a	n/a	n/a

TABLE 12: Shrimp and fish abundance after beam-trawling along transect 3 in Simoom Sound in February 22, 2001.

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-Shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	Eualid & Crangon	Unidentified	Flatfish	Zorcidæ & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
1	0:47:20	0:48:00	1	0	0	1	3	5	Fast trolling speed.	n/a	n/a	n/a	n/a
2	0:48:01	0:49:00	3	1	0	1	4	3		0.48	38.52	n/a	n/a
3	0:49:01	0:50:00	2	0	0	2	1	3	Trench 49:36-49:3	n/a	n/a	n/a	n/a
4	0:50:01	0:51:00	2	0	0	0	0	5	Slower troll speed 50:08 to 58:00 On bottom 50:54-50:59	0.43	27.51	n/a	n/a
5	0:51:01	0:52:00	0	0	0	1	2	1	Camera off bottom 51:00 Camera off bottom 51:01-51:15 On bottom 51:36, 51:44-51:56	n/a	n/a	n/a	n/a
6	0:52:01	0:53:00	2	0	1	1	2	4		0.43	27.51	60	70
7	0:53:01	0:54:00	4	0	0	0	0	5		0.36	19.26	50	60
8	0:54:01	0:55:00	6	0	0	2	1	5	Camera off bottom 54:00-54:05 On bottom 54:07	0.54	24.08	-	100
9	0:55:01	0:56:00	1	0	0	4	5	6	Poor visibility 55:20-55:25 On bottom 55:34-55:35	n/a	n/a	n/a	n/a

TABLE 12: (Continued)

Transect Segment	Video Time		Shrimp Count (E= Eualus; P=Pandalus; C=Crangon)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
	Start	Finish	<i>P. hypsinotus</i>	<i>P. borealis</i>	Eualid & Crangon	Unidentified	Flatfish	Zorcidae & Anguliform		Field Diameter (m)	Swath Length (m)	Min	Max
10	0:56:01	0:57:00	3	2	0	1	1	6	Plume of debris 56:38-56:40 Log 56:34 On bottom 56:42 – 56:43	n/a	n/a	20	22
11	0:57:01	0:58:00	2	0	0	1	1	10	Trench area (track 2) 57:51 - 57:54 58:00 – 1:08:40: Fast Troll				
12	1:02:50	1:04:00	2	1	0	3	0	18	Fast trawl speed to end Trench area 1:02:53-1:02:55	n/a	n/a	n/a	n/a
13	1:04:01	1:05:00	1	0	0	4	2	10	Poor visibility 1:04:09-1:04:14	n/a	n/a	n/a	n/a
14	1:05:01	1:06:00	2	0	0	3	3	17	Fish/shrimp 1:05:05 Poor visibility 1:05:54-1:06:03	0.61	38.52	n/a	n/a
15	1:06:01	1:07:00	6	0	0	1	2	9	Poor visibility 1:06:14-20, 1:06:30-35	0.61	38.52	40	60
16	1:07:01	1:08:00	6	0	0	6	3	16		0.36	38.52	-	20
17	1:08:01	1:08:40	1	0	0	3	2	6	Trench area 1:08:16-1:08:17	0.48	n/a	n/a	n/a

TABLE 13: Shrimp and fish abundance prior to trapping along transect 1 in Simoom Sound, November 15-16, 2000.

Transect Segment	Actual Time	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations Notes & Observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. Platyceros</i>	Flatfish	Eelpout Wrymouth		Field Diameter (m)	Swath Length (m)	Min	Max
1	16:23:00 approx.	0:02:11	0	3	0	0	0	0	Visibility low due to suspended matter	n/a	n/a	n/a	n/a
		0:02:13	0	3	0	0	0	0					
		0:02:15	0	6	0	0	0	0					
2		0:02:45	0	14	0	0	0	0	> 4 shrimp in hole 02:47 Likely humpback in hole 02:47	0.53	3.15	5	20
		0:02:47	0	15	2	0	0	0					
		0:02:49	0	10	0	0	0	0					
3		0:03:30	0	9	0	0	0	0	Limited visibility	n/a	n/a	n/a	n/a
		0:03:32	1	12	0	0	0	0					
		0:03:34	1	8	0	0	0	0					
4		0:04:04	0	6	0	0	0	0	Limited visibility	n/a	n/a	n/a	n/a
		0:04:06	0	16	0	0	0	0					
		0:04:08	0	17	0	0	0	0					
5		0:04:40	0	5	0	0	0	0	Camera near bottom	0.53	4.50	5	40
		0:04:42	0	5	0	0	0	0					
		0:04:44	0	9	0	0	0	0					
6		0:05:10	0	10	0	0	1	0		n/a	n/a	n/a	n/a
		0:05:12	0	5	0	0	0	0					
		0:05:14	0	9	0	0	0	0					
7		0:05:40	0	9	0	0	0	0	Increased camera speed	n/a	n/a	n/a	n/a
		0:05:42	0	4	0	0	0	0					
		0:05:44	0	8	0	0	0	0					
8		0:06:36	0	13	0	0	0	0		0.49	4.68	5	20
		0:06:38	0	10	0	0	0	0					
		0:06:40	0	12	0	0	0	0					
9		0:07:10	1	12	0	0	0	0	Poor visibility Count difficult – moving shrimp	n/a	n/a	n/a	n/a
		0:07:12	0	13	0	0	0	0					
		0:07:14	0	8	0	0	0	0					
10		0:07:45	0	3	0	0	0	0		n/a	n/a	n/a	n/a
		0:07:47	0	7	0	0	0	0					
		0:07:49	0	6	0	0	0	0					
11		0:08:10	0	6	0	0	0	0	Poor visibility	0.53	3.78	10	20
		0:08:12	0	8	0	0	0	0					
		0:08:14	0	13	0	0	0	0					
12		0:08:40	1	11	0	0	0	0	Poor visibility	n/a	n/a	n/a	n/a
		0:08:42	0	12	0	0	0	0					
		0:08:44	0	13	0	0	0	0					

Table 13: (Continued)

Transect Segment	Actual	Video Time	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. Platyceros</i>	Flatfish	Eelpout Wrymouth		Notes & Observations	Field Diameter (m)	Swath Length (m)	Min
13		0:09:10	0	9	0	0	0	0		n/a	n/a	n/a	n/a
		0:09:12	0	10	0	0	0	0					
		0:09:14	0	8	0	0	0	0					
14		0:10:04	0	5	0	0	0	1		0.56	4.68	5	30
		0:10:06	0	5	1	0	0	0					
		0:10:08	0	5	0	0	0	0					
15		0:11:00	0	5	0	0	0	0	Poor visibility	n/a	n/a	n/a	n/a
		0:11:02	0	8	0	0	0	0					
		0:11:04	0	15	0	0	0	0					
16		0:12:00	0	8	0	0	0	0	Good visibility Camera near bottom	n/a	n/a	n/a	n/a
		0:12:02	0	6	0	0	0	0					
		0:12:04	0	7	0	0	0	0					
17		0:13:00	0	5	0	0	0	0	Camera near bottom	0.53	4.68	0	30
		0:13:02	0	5	0	0	0	0					
		0:13:04	0	7	0	0	0	0					
18		0:14:00	0	7	0	0	0	0	Poor video images - vibration in footage	n/a	n/a	n/a	n/a
		0:14:02	0	4	0	0	0	0					
		0:14:04	0	3	0	0	0	0					
19		0:15:00	0	3	0	0	1	0		n/a	n/a	n/a	n/a
		0:15:02	0	3	1	0	1	0					
		0:15:04	0	1	0	0	1	0					
20	16:42:00 approx.	0:16:30	0	1	2	0	0	0	Shells & debris on bottom Increase in substrate relief Camera near bottom	0.36	3.78	-	10
		0:16:32	0	2	0	0	0	0					
		0:16:34	0	1	0	0	0	0					

TABLE 14: Shrimp and fish abundance before trapping along transect 2 in Simoom Sound, November 15-16, 2000.

Transect Segment	Actual Time	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	Eelpout Wrymouth		Field Diameter (m)	Swath Length (m)	Min	Max
1	17:02:00 approx.	0:00:37	1	11	0	0	0	0	Poor visibility	n/a	n/a	n/a	n/a
		0:00:39	0	8	0	0	0	0					
		0:00:41	0	15	0	0	0	0					
2		0:01:14	0	12	0	0	0	0	Poor visibility	n/a	n/a	n/a	n/a
		0:01:16	0	3	0	0	0	0					
		0:01:18	0	14	0	0	0	0					
3		0:01:49	0	8	0	0	0	0	Poor visibility Camera off/on bottom count difficult	0.70	3.78	5	10
		0:01:51	0	6	0	0	0	0					
		0:01:53	0	10	0	0	0	0					
4		0:02:32	1	8	0	0	0	0	Poor visibility Camera off/on bottom throughout segment	n/a	n/a	n/a	n/a
		0:02:34	0	12	0	0	0	0					
		0:02:36	0	6	0	0	0	0					
5		0:03:18	0	8	1	0	0	0	Poor visibility Camera off/on bottom Throughout segment	n/a	n/a	n/a	n/a
		0:03:20	0	16	0	0	0	0					
		0:03:22	0	6	0	0	0	0					
6		0:03:54	1	15	0	0	0	0	Poor visibility	0.53	4.68	5	10
		0:03:56	0	4	0	0	0	0					
		0:03:58	0	16	0	0	0	0					
7		0:04:31	0	13	0	0	0	0		n/a	n/a	n/a	n/a
		0:04:33	0	15	0	0	0	1					
		0:04:35	0	8	0	0	0	0					
8		0:05:09	0	10	0	0	0	0	Poor visibility	n/a	n/a	n/a	n/a
		0:05:11	0	21	0	0	0	0					
		0:05:13	0	22	0	0	0	0					
9		0:05:50	0	20	0	0	0	0	Poor visibility	0.60	4.68	5	10
		0:05:52	0	23	0	0	0	0					
		0:05:54	0	24	0	0	0	0					
10		0:06:26	0	14	0	0	0	0	Poor visibility	n/a	n/a	n/a	n/a
		0:06:28	0	13	0	0	0	0					
		0:06:30	1	19	0	0	0	0					
11		0:07:02	0	9	0	0	0	0	Camera near bottom Poor visibility	n/a	n/a	n/a	n/a
		0:07:04	0	14	0	0	0	0					
		0:07:06	0	8	0	0	0	0					
12		0:07:38	1	12	0	0	0	0	Camera near bottom Poor visibility	0.53	4.68	0	30
		0:07:40	0	13	0	0	0	0					
		0:07:42	0	8	0	0	0	0					
13		0:08:04	0	5	0	0	0	0	Camera contact bottom View partially obscured Near bottom, poor visibility	n/a	n/a	n/a	n/a
		0:08:06	0	9	0	0	0	0					
		0:08:08	0	5	0	0	0	0					

Table 14:(Continued)

Transect Segment	Actual Time	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	Eelpout Wrymouth		Field Diameter (m)	Swath Length (m)	Min	Max
14		0:08:54	0	5	0	0	0	1	Camera near bottom,	n/a	n/a	n/a	n/a
		0:08:56	0	0	0	0	0	0					
		0:08:58	0	7	1	0	0	0					
15		0:09:59	0	2	0	0	0	0	Camera near bottom	0.47	4.68	10	20
		0:10:01	0	5	0	0	0	0					
		0:10:03	0	0	0	0	0	0					
16		0:10:22	0	5	0	0	0	1	Poor visibility	n/a	n/a	n/a	n/a
		0:10:24	0	3	0	0	0	0					
		0:10:26	0	5	0	0	0	1					
17		0:10:50	0	1	0	0	0	0	Shells and debris on bottom Poor visibility	n/a	n/a	n/a	n/a
		0:10:52	0	1	1	0	0	1					
		0:10:54	0	0	0	0	0	0					
18		0:11:06	0	4	0	0	0	0	Poor visibility Shells and debris on bottom	0.70	4.68	30	50
		0:11:08	0	2	0	0	0	0					
		0:11:10	0	0	0	0	0	0					
19		0:11:22	0	1	0	0	0	0	Poor visibility Shells and debris on bottom	n/a	n/a	n/a	n/a
		0:11:24	0	0	0	0	0	0					
		0:11:26	1	0	0	0	0	0					
20	17:14:30 approx.	0:11:40	0	1	1	0	0	0	Shells and debris on bottom	n/a	n/a	n/a	n/a
		0:11:42	0	0	1	0	0	0					
		0:11:44	0	1	1	0	0	0					

TABLE 15: Shrimp and fish abundance before trapping along transect 3 in Simoom Sound, November 15-16, 2000.

Transect segment	Actual Time	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment Dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. platyceros</i>	Flatfish	Eelpout Wrymouth		Field Diameter (m)	Swath Length (m)	Min	Max
1	17:33:00 approx.	0:00:00	1	5	0	0	0	1	Camera off/near bottom	n/a	n/a	n/a	n/a
		0:00:02	0	8	0	0	0	0					
		0:00:04	0	6	0	0	0	0					
2		0:00:06	0	3	0	0	0	0	Camera off/near bottom Poor visibility	0.70	4.68	10	40
		0:00:08	0	12	0	0	0	0					
		0:00:10	0	5	0	0	0	0					
3		0:00:12	0	5	0	0	0	0	Camera off/near bottom	n/a	n/a	n/a	n/a
		0:00:14	0	10	0	0	0	0					
		0:00:16	0	7	1	0	0	0					
4		0:00:18	0	8	0	0	0	0		n/a	n/a	n/a	n/a
		0:00:20	0	7	0	0	0	0					
		0:00:22	0	5	0	0	1	0					
5		0:00:24	0	4	0	0	0	0	Camera off/near bottom Poor visibility	0.53	5.40	0	30
		0:00:26	0	5	0	0	0	0					
		0:00:28	0	10	0	0	0	0					
6		0:00:31	0	1	0	0	1	0	Poor visibility Reef/sponge large assemblage Camera off/near bottom	n/a	n/a	n/a	n/a
		0:00:33	0	20	0	0	0	0					
		0:00:35	0	4	0	0	0	0					
7		0:00:38	0	2	0	0	0	0	Poor visibility	0.65	4.68	5	40
		0:00:40	0	6	0	0	0	0					
		0:00:42	2	8	0	0	0	0					
8		0:00:45	0	6	0	0	0	0	Camera off bottom Poor visibility, count difficult	n/a	n/a	n/a	n/a
		0:00:47	0	5	0	0	0	0					
		0:00:49	0	6	0	0	0	0					
9		0:00:52	0	4	0	0	0	0	Camera off/near bottom Poor visibility	n/a	n/a	n/a	n/a
		0:00:54	0	5	0	0	0	0					
		0:00:56	0	10	0	0	0	0					
10		0:00:59	2	5	0	0	0	0		n/a	n/a	n/a	n/a
		0:01:01	0	8	0	0	0	0					
		0:01:03	0	6	0	0	0	0					
11		0:01:06	1	10	0	0	0	0	Camera off/near bottom	0.60	4.68	5	40
		0:01:08	0	6	0	0	0	0					
		0:01:10	0	8	0	0	0	0					
12		0:01:45	2	4	0	0	0	0	Camera off/near bottom	n/a	n/a	n/a	n/a
		0:01:47	0	5	0	0	0	0					
		0:01:49	0	5	0	0	0	1					

Table 15: (Continued)

Transect segment	Actual Time	Video Time min:sec	Shrimp Count (E= Eualus; P=Pandalus)				Fish Count		Camera visibility & seabed observations	Transect Segment dimensions		Inter-shrimp Distance (cm)	
			<i>E. suckleyi</i>	<i>P. borealis</i>	<i>P. hypsinotus</i>	<i>P. Platyceros</i>	Flatfish	Eelpout Wrymouth		Field Diameter (m)	Swath Length (m)	Min	Max
13		0:02:10	1	5	0	0	0	0	<i>Poor visibility</i>	0.60	6.30	5	40
		0:02:12	0	5	0	0	0	0					
		0:02:14	0	4	0	0	0	0					
14		0:02:17	0	11	0	0	0	0	<i>Poor visibility</i>	n/a	n/a	n/a	n/a
		0:02:19	0	5	0	0	0	0					
		0:02:21	0	5	0	0	0	0					
15		0:02:24	0	5	0	0	0	0		n/a	n/a	n/a	n/a
		0:02:26	0	6	0	0	0	0					
		0:02:28	0	4	0	0	1	0					
16		0:02:31	0	4	0	0	0	0	<i>Poor visibility</i> Hole/vent 02:34	0.70	4.68	10	70
		0:02:33	0	3	0	0	0	0					
		0:02:35	0	3	0	0	0	0					
17		0:02:38	1	4	0	0	0	0		n/a	n/a	n/a	n/a
		0:02:40	0	10	0	0	0	0					
		0:02:42	0	5	0	0	0	0					
18		0:02:45	0	4	0	0	0	0	<i>Poor visibility</i>	n/a	n/a	n/a	n/a
		0:02:47	1	5	0	0	0	0					
		0:02:49	0	5	0	0	0	0					
19		0:02:52	0	6	0	0	0	0		0.53	3.78	5	30
		0:02:54	0	3	0	0	0	0					
		0:02:56	1	4	0	0	0	0					
20	17:46:30 approx.	0:02:59	0	7	0	0	0	0	<i>Poor visibility, count difficult</i> Tape over at 03:09	n/a	n/a	n/a	n/a
		0:03:01	0	8	0	0	0	0					
		0:03:03	0	3	0	0	0	0					

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