King County

Brightwater

TREATMENT SYSTEM

Brightwater Outfall Construction Trench

Nearshore Benthic Community Characterization

Final Report

Prepared for the

King County Wastewater Treatment Division
Washington State Department of Fish and Wildlife
Washington State Department of Natural Resources

by the

King County Water and Land Resources Division
Science and Technical Support Section

February 2016

King County

Brightwater

TREATMENT SYSTEM

Brightwater Outfall Construction Trench

Nearshore Benthic Community Characterization

Final Report

Prepared by

Wendy Eash-Loucks
Marine and Sediment Assessment Group
Water and Land Resources Division
King County Department of Natural Resources and Parks
201 South Jackson Street, Suite 600
Seattle, Washington 98104
206-477-4683
wendy.eash-loucks@kingcounty.gov

February 2016

Acknowledgements

The following individuals are acknowledged for their contributions to this document:

Scott Mickelson (previously at King County) and Allan Fukuyama (Fukuyama-Hironaka) provided technical information on sampling history and methodologies. The sampling and analysis plan for this project was prepared by Scott Mickelson.

Samples were collected by the King County Environmental Laboratory's Field Science Unit and analyzed at the King County Environmental Laboratory (sediment conventionals) and by Fukuyama-Hironaka (benthic taxonomy).

The review of this report by Kimberle Stark, Amelia Kolb, and Jim Simmonds is greatly appreciated.

Citation

King County. 2016. Brightwater Outfall Construction Trench Nearshore Benthic Community Characterization – Final Report. Prepared by Wendy Eash-Loucks, Water and Land Resources Division. Seattle, Washington.

Executive Summary

This report presents the results of a nearshore benthic community characterization study within the area surrounding the construction trench for the Brightwater Treatment System (Brightwater) marine outfall. King County undertook pre- and post-construction benthic community monitoring at the nearshore location of the Brightwater Treatment System's marine outfall. The study characterizes the benthic community (animals within and on the surface of sediments) to determine impacts of construction and the degree to which the benthic community recovered post-construction.

King County's Brightwater system includes an outfall that discharges highly-treated (secondary treatment with membrane bio-reactor technology) effluent to Puget Sound's marine waters near the King-Snohomish county line. The outfall was installed in October 2008 and consists of an underground pipe starting at Point Wells that splits into two pipes that emerge from the sediment on the seafloor at -80 ft mean lower low water (MLLW). The twin outfall pipes continue underwater, lying on the seafloor, to approximately one mile offshore to a depth of about -600 ft MLLW, and terminate in diffuser structures.

The pipeline was installed in 2008 using open-trench excavation techniques starting onshore and continuing from the shoreline through the nearshore to a water depth of -80 ft MLLW. The remaining pipeline length and diffusers (from -80 ft MLLW and deeper) were placed directly on the seafloor. Excavated sediments were stored on a barge for about 2.5 months until replaced in the trench following pipe installation. No benthic organisms survived in the excavated sediments stored on the barge during construction.

Pre-construction benthic community monitoring occurred in 2006 and 2007. Post-construction monitoring occurred in 2009 and 2011. In 2006, monitoring occurred at seven non-disturbed reference stations between -35 and -85 ft MLLW about 100 ft south of the Brightwater construction trench. In 2007, monitoring occurred at three stations at similar depths within the trench corridor and at four stations just outside of the trench corridor (the stations were referred to as trench and edge stations, respectively). Post-construction samples were collected in 2009 and 2011 at the same seven locations as those sampled in 2007, as well as at three of the reference (2006) stations.

Monitoring results show that changes in physical sediment characteristics occurred at some trench and edge stations, indicating impacts by construction activities. These changes include an increase in percent gravel at some stations along with a decrease in percent sand, and changes in total organic carbon at several stations. Maintaining physical sediment characteristics pre- and post-construction minimizes the likelihood of seeing benthic community impacts from construction.

Some shifts in the benthic community, as shown by several benthic indexes, were observed one-year post-construction (2009) relative to pre-construction (2007). When compared to reference samples, the 2009 trench and edge samples had lower abundances and biomass. Despite overall lower abundance, a few stress-tolerant species were more abundant in

2009 compared to pre-construction samples. This, along with the proportional increase in abundance of annelids (typical early colonizers of disturbed habitats) may indicate that the benthic communities were at least somewhat influenced by stress-tolerant and opportunistic species one year after construction. Abundance and biomass values were similar among all stations three years post-construction in 2011, and the abundance of stress-tolerant species largely decreased while stress-sensitive species increased in abundance.

Statistical analysis of the benthic data using multidimensional scaling (MDS) techniques showed substantial interannual variability across all sites. Within this variability, the 2009 and 2011 samples were most similar to 2007 samples. This analysis shows that care must be taken to differentiate construction impacts and recovery from natural year-to-year shifts in community structure.

Overall, some construction-related impacts to the nearshore benthic communities were observed at some sites one-year post-construction. However, natural recovery of the denuded subtidal trench area, and likely disturbed edge habitat, had already begun within one year post-construction, therefore minimizing the observed impacts. Recovery, measured by changes in benthic indexes and comparison to reference sites, was near completion after three years. Naturally occurring year-to-year variability in benthic community structure was observed and is an important consideration when comparing across years. Collecting samples six months or earlier post-construction would have allowed for the documentation of early recolonization. Because the rate of natural recovery is so fast, this strategy is recommended for future pre/post-construction monitoring projects to better understand the impacts and the process of recolonization. No further monitoring of the benthic community at the Brightwater outfall's nearshore trench area is recommended at this time.

Table of Contents

1.0 Introduction 1
1.1 Project Directives 1
1.2 Project Background 1
1.3 Sampling Background 3
2.0 Sample Collection and Analysis 5
2.1 Sample Collection 5
2.2 Sample Analysis 7
3.0 Results 9
3.1 Conventional Parameters 9
3.1.1 Particle Size Distribution 9
3.1.2 Total Organic Carbon 12
3.2 Benthic Community 12
3.2.1 Benthic Indices 13
Abundance 13
Richness 14
Biomass 14
Shannon-Wiener Diversity 15
Pielou's Evenness 15
Swartz's Dominance 15
3.2.2 Multidimensional Scaling 21
3.2.3 Taxa Composition Changes 23
Shifts in Abundant and Indicator Taxa 23
Species Presence/Absence 28
4.0 Discussion 30
4.1 Factors Affecting Benthic Community 30
4.2 Evidence of Impacts and Recovery 30
5.0 Conclusions 33
6.0 References 34

Figures

Figure 1. Location of Brightwater Marine Outfall pipes at Point Wells, and the nearshore study area. 2

Figure 2. Location of benthic community sampling stations at the Brightwater outfall. 4

Figure 3. Particle size distribution changes over time within or near the Brightwater trench corridor (2006-2011). 11

Figure 4. Total organic carbon (mg/kg dw) at stations from 2006 to 2011. 12

Figure 5. Results of benthic indices at trench, edge, and reference stations from 2006 to 2011. 17

Figure 6. Abundance and relative abundance of major taxonomic groups at trench, edge, and reference stations (2006-2011). 18

Figure 7. Richness and percent richness of major taxonomic groups at trench, edge, and reference stations (2006-2011). 19

Figure 8. Wet weight biomass and relative biomass of major taxonomic groups at trench, edge, and reference stations (2006-2011). 20

Figure 9. MDS plot of benthic community similarities from nearshore pre- and post-construction monitoring with culster analysis overlayed.. 22

Figure 10. Abundance of the three most abundant annelid taxa and stress-tolerant oligochaetes at trench, edge, and reference stations from 2006 to 2011. 24

Figure 11. Abundance of the five most abundant mollusc taxa at trench, edge, and reference stations from 2006 to 2011. 26

Figure 12. Abundance of the five most abundant crustacean taxa at trench, edge, and reference stations from 2006 to 2011. 27

Figure 13. Abundance of Paleonemertea (ribbon worms) and three Echinodermata taxa at trench, edge, and reference stations from 2006 to 2011 28

Tables

Table 1. Benthos sampling locations – coordinates and depths. 6

Table 2. Summary of physical sediment properties at stations within or near the Brightwater trench corridor separated by station type (2006-2011). 10

Table 3. Summary of benthic indices, average of three 0.1 m^2 replicate samples per station, at the Brightwater Outfall trench (2006-2011). 16

Appendices

Appendix A: 2006 Sediment Data

Appendix B: 2007 Sediment Data

Appendix C: 2009 Sediment Data

Appendix D: 2011 Sediment Data

Appendix E: 2006 Benthic Taxonomy Data

Appendix F: 2007 Benthic Taxonomy Data

Appendix G: 2009 Benthic Taxonomy Data

Appendix H: 2011 Benthic Taxonomy Data

1.0 INTRODUCTION

This report presents the results of a nearshore benthic community characterization study within the construction area of the Brightwater Treatment System (Brightwater) marine outfall. This work was performed as part of the environmental monitoring required under King County's Aquatics Lands Outfall Easement and Hydraulic Project Approval (HPA) Permit.

1.1 Project Directives

King County undertook a nearshore benthic community characterization study at the planned location for the Brightwater marine outfall. The study characterizes the benthic community assemblages (organisms living within or on top of the sediment, benthos) at the nearshore location of the outfall trench both before and after construction activities.

This work was performed to partially fulfill requirements of King County's Aquatic Lands Outfall Easement No. 51-076776, issued by the Washington State Department of Natural Resources (WDNR) for the Brightwater Treatment System (WDNR, 2006). This work also fulfilled one requirement of the County's HPA Permit (No. 100180-1), issued by the Washington Department of Fish and Wildlife (WDFW) as part of the outfall construction permitting process for the Brightwater project (WDFW, 2005).

The monitoring work described in this document includes both pre-construction (2006 and 2007) and post-construction (2009 and 2011) monitoring of benthic communities and sediment parameters that may affect benthos. These data were used to evaluate the impact of the construction of the Brightwater Outfall on the nearshore benthic community, and describe if and how the community recovered.

1.2 Project Background

King County's new Brightwater Treatment System (Brightwater) includes an outfall that discharges highly-treated (secondary treatment with membrane bio-reactor technology) effluent to Puget Sound's marine waters. The final treatment facility site, conveyance system route, and outfall location were selected in December 2003, with the marine outfall located at Point Wells, along the King-Snohomish county line (Figure 1). The outfall consists of an underground 84-inch diameter pipeline starting at the Point Wells portal, (on land), which splits into two 63-inch diameter pipes at 0 mean lower low water (MLLW) that daylights (emerge from the sediment) on the seafloor at -80 ft MLLW. The outfall pipes lie on the seafloor to approximately one mile offshore to a depth of about -600 ft MLLW, terminating with 250-ft long diffuser structures. In total, the outfall pipes extend 4,112 and 4,370 ft from the shoreline.

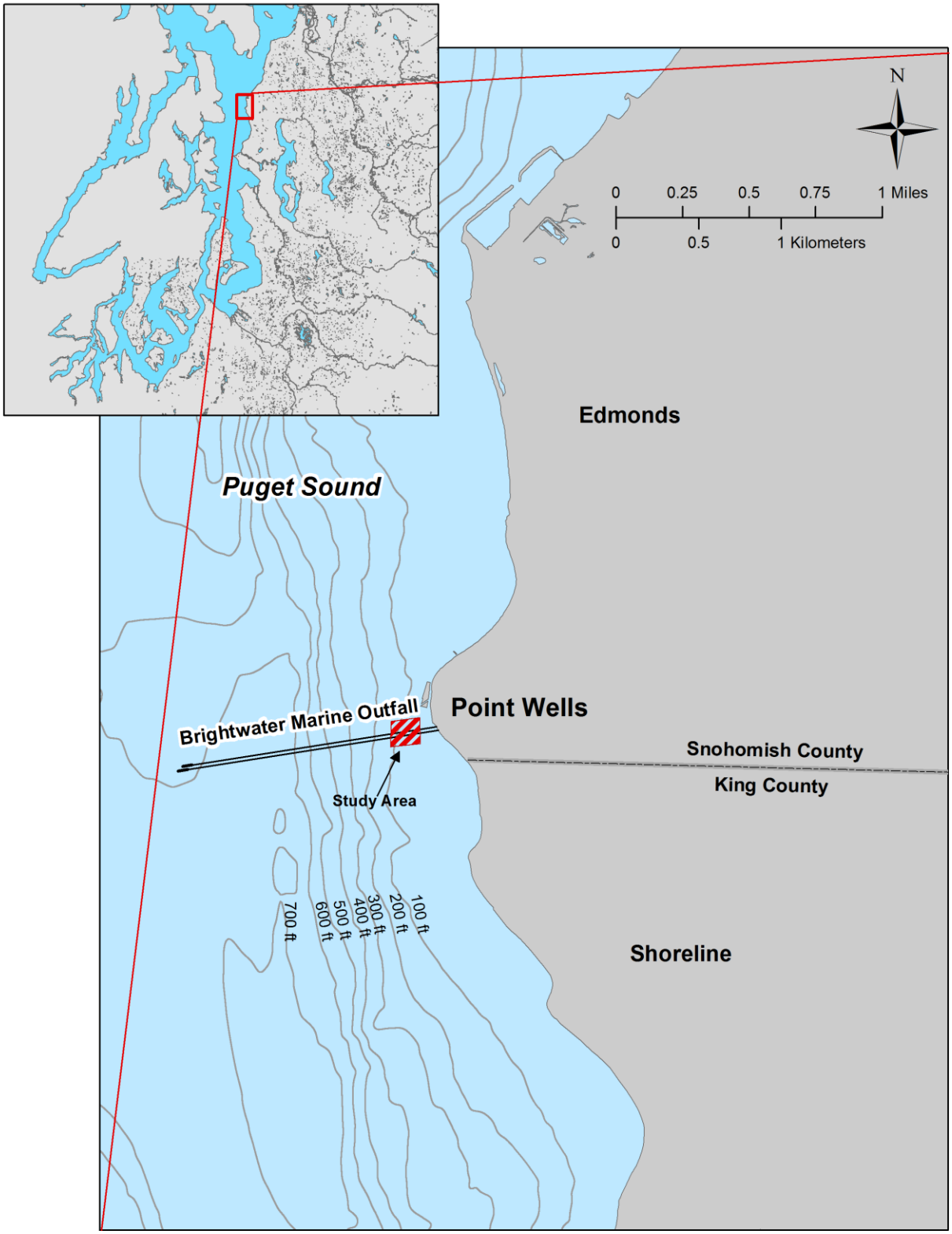

Figure 1. Location of Brightwater Marine Outfall pipes at Point Wells, and the nearshore study area.

Open-trench excavation was used for the onshore portion to a water depth of -80 ft MLLW. Trench sheeting was utilized for onshore and nearshore construction to -30 ft MLLW to minimize impacts to surrounding sediments and biota, particularly eelgrass. Unsheeted trench construction occurred from a depth of -30 to -80 ft MLLW. The trench was 12 ft in width with an anticipated additional impact area of 4 ft on either side.

During outfall construction, sediments were stored on a barge until replaced in the trench. Sediments on the barge were separated by depth and replaced along the same bathymetric contour to ensure a similar grain-size profile following construction. Due to the length of time sediments were held on the barge during construction, no live organisms remained in the replaced sediments.

1.3 Sampling Background

King County conducted a benthic community characterization at the nearshore planned location of the Brightwater Treatment System marine outfall starting in 2006 to assess impacts to benthos from outfall construction (King County, 2006). Additional sampling events in 2007 and 2008 prior to construction were planned to characterize the benthic community and assess interannual variability, thus providing a baseline against which data from post-construction monitoring events could be compared to assess benthic community recovery.

The sample design included three stations placed within the location of the trench, and four samples placed approximately 15 ft outside the trench on either side to evaluate potential impacts. Due to a mapping error, the seven sampling locations for the pre-construction October 2006 monitoring event were approximately 100 ft south of the actual construction trench (King County, 2007). The mapping error was discovered prior to the 2007 monitoring event, and the stations were relocated to within and around the planned construction trench. The second monitoring event occurred in October of 2007, with seven stations correctly placed along the outfall alignment. Station names from 2006 are numbers, while the relocated stations from 2007 and later were named with the same numbers, based on alignment, followed by "A". For all sampling events, three sampling stations were placed along the trench centerline at depths between approximately -35 ft to -85 ft MLLW to be able to monitor recovery in the area in which the benthic community was completely removed; these stations are referred to as "Trench" stations. Four sampling stations (two on either side) were placed just outside of the trenching corridor, which was 12 ft wide, to act as proximal reference stations or "Edge" stations. See Figure 2 for location of all stations. It should be noted that benthos samples were only collected in the nearshore at depths greater than -30 ft MLLW to avoid disturbance of eelgrass that was present at the site between -2 and -25 ft MLLW.

The outfall was constructed in 2008 before another round of pre-construction monitoring could be conducted. Post-construction monitoring was conducted in October of 2009 and 2011 at the seven stations sampled in 2007 with one exception. Due to unforeseeable sampling problems, station 5A was not sampled in 2011. In addition, three stations that

were sampled in 2006 along what was expected to be the trench centerline were sampled again in 2009 and 2011 (Figure 2). These stations provide additional benthic reference data, and are important in evaluating the impact of construction activities at the four edge stations just outside of the construction trench. Despite these stations not being sampled in 2007, they will be used to assess spatial and temporal variations in the benthic community as a whole, and will be referred to as "Reference" stations. The combined four years of benthic community data are used to determine if construction of the Brightwater outfall impacted nearshore benthic communities, and if so, to what degree communities have recovered.

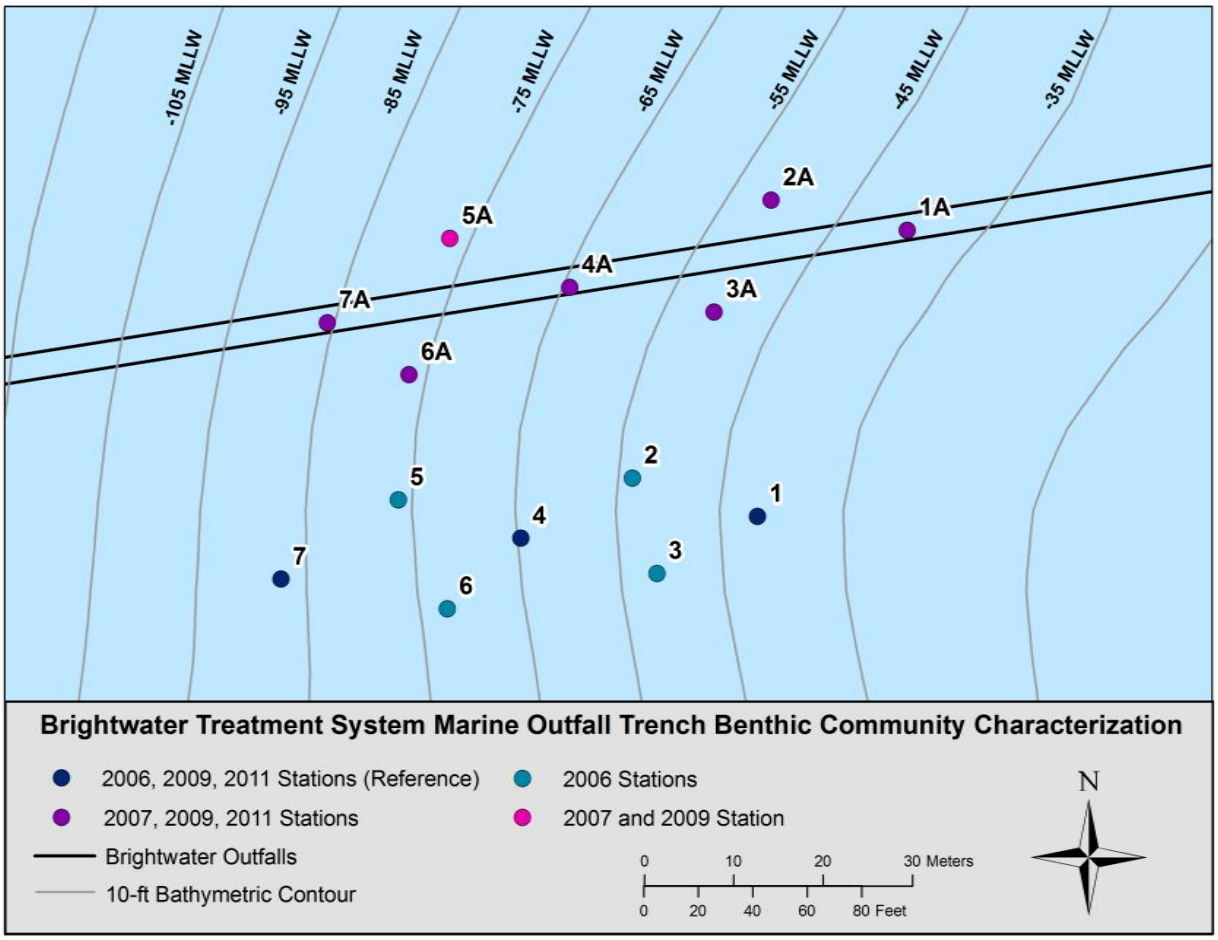

Figure 2. Location of benthic community sampling stations at the Brightwater outfall.

2.0 SAMPLE COLLECTION AND ANALYSIS

Sediment samples collected for this study (shown in Figure 2) were analyzed for conventional sediment parameters, and for enumeration and identification of benthic fauna. Benthic fauna was defined as including both infauna and epifauna as both would be impacted by trench construction. Sediment conventional parameters included particle size distribution (PSD) and total organic carbon (TOC), which can affect the composition of the benthic community in Puget Sound (Ecology, 2009, 2013), as well as percent solids (for dry weight normalization). The stations are named 1 through 7 and 1A through 7A, reflecting the two sets of sampling stations. Station locations and years sampled are summarized in Table 1.

2.1 Sample Collection

All sample collection followed protocols outlined in the Puget Sound Estuary Program's (PSEP) Puget Sound Protocols (PSEP 1987, 1997, and 1998). Sediment was obtained using two modified, stainless steel, 0.1 m^2 van Veen grab samplers deployed in tandem from King County's research vessel *Liberty*. The *Liberty* is equipped with a differential global positioning system (DGPS). The DGPS is a satellite-based navigation system that operates using a receiver to calculate ground position by triangulating scrambled data transmitted by a constellation of satellites operated by the Department of Defense (DOD). The ship-board "differential receiver receives both the scrambled DOD signal and "corrected" signals originating from base stations operated by various agencies including the Coast Guard and King County. System software applies the differential correction and calculates a precise, real-time navigational position. To increase sampling accuracy, the DGPS system was enhanced by the addition and integration of an ultra-short baseline acoustical navigation system that continuously calculated three-dimensional position of the submerged grab samplers, relative to that of the surface vessel. Pitch-and-roll motion sensors and an electronic compass were also used to nullify shipboard movement and reference all underwater directional data to magnetic north.

Upon contact of the grab sampler with the bottom, the coordinate data representing the actual sediment grab impact point were electronically recorded in real time. Positioning information included local time and date that a position was recorded, comments, and coordinate data in both latitude/longitude and NAD 83 State Plane formats. The prescribed coordinates for each station are available in Table 1 and were used to compare to coordinates for each grab deployment to ensure accuracy and precision of sampling.

Table 1. Benthos sampling locations – coordinates and depths.

Station	Years Sampled	Station Type	Average Depth Sampled - m (ft)	Northing	Easting	Latitude	Longitude
BWT-BTHC-1	2006, 2009, 2011	Reference	15.0 (49.2)	288075	1255440	47° 46' 44.43"	122° 23' 57.24"
BWT-BTHC-2	2006	Reference	15.0 (49.2)	288089	1255394	47° 46' 44.56"	122° 23' 57.91"
BWT-BTHC-3	2006	Reference	15.0 (49.2)	288054	1255403	47° 46' 44.22"	122° 23' 57.77"
BWT-BTHC-4	2006, 2009, 2011	Reference	23.0 (75.5)	288067	1255353	47° 46' 44.34"	122° 23' 58.51"
BTW-BTHC-5	2006	Reference	29.0 (95.1)	288081	1255308	47° 46' 44.46"	122° 23' 59.17"
BWT-BTHC-6	2006	Reference	27.0 (88.6)	288041	1255326	47° 46' 44.07"	122° 23' 58.90"
BWT-BTHC-7	2006, 2009, 2011	Reference	31.0 (101.7)	288052	1255265	47° 46' 44.17"	122° 23' 59.79"
BWT-BTHC-1A	2007, 2009, 2011	Trench	13.3 (43.6)	288180	1255495	47° 46' 45.48"	122° 23' 56.46"
BWT-BTHC-2A	2007, 2009, 2011	Edge	17.3 (56.8)	288191	1255445	47° 46' 45.58"	122° 23' 57.20"
BWT-BTHC-3A	2007, 2009, 2011	Edge	18.3 (60.0)	288150	1255424	47° 46' 45.17"	122° 23' 57.49"
BWT-BTHC-4A	2007, 2009, 2011	Trench	23.7 (77.8)	288159	1255371	47° 46' 45.25"	122° 23' 58.27"
BWT-BTHC-5A	2007, 2009	Edge	26.0 (85.3)	288177	1255327	47° 46' 45.42"	122° 23' 58.92"
BWT-BTHC-6A	2007, 2009, 2011	Edge	28.0 (91.9)	288127	1255312	47° 46' 44.92"	122° 23' 59.13"
BWT-BTHC-7A	2007, 2009, 2011	Trench	31.0 (101.7)	288146	1255282	47° 46' 45.10"	122° 23' 59.57"

A minimum of three successful deployments of the tandem grab samples were required at each station. These multiple deployments would result in three benthic replicates at each station and a single sediment chemistry sample, comprised of sediment composited from three separate grabs. Each successful grab deployment would result in one benthic replicate being collected from one of the tandem grabs and a sediment aliquot for the composite sediment chemistry sample being collected from the other grab.

Sediment conventional samples were collected from the top 10 cm of sediment to characterize the physical sediment characteristics over the most biologically-active zone. Sediment was removed from the grab with a stainless-steel spoon and placed into a stainless-steel bowl for thorough homogenization, after sediment from three grabs had been obtained. All sample aliquots were split out after homogenization and placed into labeled, precleaned containers supplied by the King County Environmental Laboratory.

Sediment conventional samples were stored in ice-filled coolers from the time of collection until delivery to KCEL. Samples were delivered under chain-of-custody and were maintained as such throughout the analytical process. Percent solids and TOC samples were stored frozen at a temperature of -18 °C (0 °F) until analysis, and PSD samples were stored refrigerated at approximately 4 °C (39 °F).

Benthic samples were comprised of the entire contents of each of the three replicate grabs at each station. These samples were immediately sieved in the field through a one-millimeter screen and all material retained on the screen was preserved with a 10% buffered formalin solution and stored for later analysis. At the Fukuyama-Hironaka contract laboratory, benthic samples were transferred from the 10% buffered formalin solution to 70% ethanol as recommended by the Puget Sound Protocols.

2.2 Sample Analysis

Sediment conventional analysis included PSD, TOC, and percent solids (for dry weight-normalization of TOC data). Percent solids analysis was performed according to Standard Method 2540-G (APHA, 1998), which is a gravimetric determination. TOC analysis was performed following EPA Method 9060 (PSEP, 1986), high-temperature combustion with infrared spectroscopy. PSD analysis was performed according to ASTM Method D422, which is a combination of sieve and hydrometer methodologies (ASTM, 2002).

All benthic taxonomy work was performed following accepted regional guidelines (PSEP, 1987). Organisms were identified to species level, whenever possible, and then grouped into four categories of taxa for reporting purposes and calculations of wet-weight (ww) biomass. The four taxa categories reported were Annelida, Crustacea, Mollusca, and miscellaneous taxa. A total biomass measurement was reported for each of the four taxa categories, representing the combined weight of all organisms in each taxon (reported in grams). QA/QC procedures included resorting 20% of each processed sample to check sorting efficiency. Five percent of the samples from each major taxonomic group were sent

from Fukuyama-Hironaka to independent taxa experts for re-identification, referred to as the voucher collection.

3.0 RESULTS

3.1 Conventional Parameters

Sediment conventional results are summarized below and in Table 2. Full results including detection limits are provided in Appendices A-D.

3.1.1 Particle Size Distribution

PSD results indicate a very sandy pre-construction and post-construction environment in and near the trench. Sediments were similarly sandy at stations sampled in 2006 (94.4 to 98.8%, mean = 97.0% sand) as stations sampled in 2007 (94.7 to 98.1%, mean = 96.2%) (Paired t-test, $p = 0.376$). Percent fines and percent gravel also did not significantly differ between stations in 2006 and 2007.

Total percent fines (clay plus silt) values at all pre-construction (2006-2007) monitoring stations were less than 3%. Total post-construction fines did increase slightly at some station, including reference and trench/edge stations, but remained below 6% during the entire study period. The increase in percent fines was largely due to a slight increase in percent clay at some stations (Table 2, Figure 3).

While the percentage of fines largely stayed the same (relatively low) throughout the course of the study, the percentage of the larger particles shifted after construction at a few stations. Sand and gravel shifts were primarily seen at stations 2A and 3A along the -50 ft bathymetric contour. At reference stations, percentages of sand and gravel did not vary over the study period with sand ranging from 94.4 to 98.8% (mean = 96.6%) during pre-construction and 94.7-97.1% (mean = 96.1%) during post-construction. Similarly gravel ranged from 0 to 3.5% (mean = 0.7%) during pre-construction and 0 – 2.5% (mean = 0.6%) during post-construction. PSD shifted post-construction at several trench and edge stations. Pre-construction sand ranged from 94.7 to 98.1% (mean = 96.2%), but shifted to 45.5 to 98.1% (mean = 85.3%) in post-construction samples. Percentages of gravel in trench and edge stations ranged from 0 to 1.1% (mean = 0.6%) in pre-construction monitoring, and 0.7 to 53.6 % (mean = 11.2%) in post-construction. Changes in PSD can be seen in Table 2 and Figure 3.

Table 2. Summary of physical sediment properties at stations within or near the Brightwater trench corridor separated by station type (2006-2011). ***<MDL = below detection limit (for information on detection limits see data in Appendices A-D)***

Station Type		Reference							Edge				Trench		
Station Name		BWT-BTHC-1	BWT-BTHC-2	BWT-BTHC-3	BWT-BTHC-4	BWT-BTHC-5	BWT-BTHC-6	BWT-BTHC-7	BWT-BTHC-2A	BWT-BTHC-3A	BWT-BTHC-5A	BWT-BTHC-6A	BWT-BTHC-1A	BWT-BTHC-4A	BWT-BTHC-7A
Station Depth		15m	15m	15m	23m	29m	27m	31m	17m	18m	26m	28m	13m	24m	31m
% Fines	2006	2	1.3	0.6	1.4	2	1.3	0.7	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	1.7	1.3	1.6	1.2	2.6	1.2	1.7
	2009	<MDL	-	-	<MDL	-	-	2.6	<MDL	5.5	2.6	2.5	0.7	3.7	2.4
	2011	2.5	-	-	3.9	-	-	2.5	1.1	2.6	-	3.2	2.5	2.6	4.9
% Clay	2006	1.3	0.6	<MDL	<MDL	1.3	<MDL	0.7	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	1.1	0.6	1.1	1.2	0.7	0.6	1.2
	2009	<MDL	-	-	<MDL	-	-	1.3	<MDL	2.7	1.3	<MDL	<MDL	1.2	1.2
	2011	1.9	-	-	3.9	-	-	1.9	1.1	2.6	-	2.6	1.3	2.0	4.2
% Silt	2006	0.7	0.6	0.6	1.4	0.7	1.3	<MDL	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	0.6	0.6	0.6	<MDL	1.9	0.6	0.6
	2009	<MDL	-	-	<MDL	-	-	1.3	<MDL	2.7	1.3	2.5	0.7	2.4	1.2
	2011	0.6	-	-	<MDL	-	-	0.6	<MDL	<MDL	-	0.6	1.3	<MDL	<MDL
% Sand	2006	98.8	97	97.6	98.2	95.4	97.6	94.4	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	97.6	96.9	98.1	94.9	95.6	95.8	94.7
	2009	96.1	-	-	95.7	-	-	97.1	50.7	84.7	94.4	95.4	95.7	94.7	91.4
	2011	95.6	-	-	97.1	-	-	94.7	45.5	88.3	-	95.3	90.0	94.8	88.0
% Gravel	2006	<MDL	0.3	<MDL	0.2	0.9	0.7	3.5	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	0.5	1.1	0.3	0.5	0.9	<MDL	0.6
	2009	<MDL	-	-	0.2	-	-	<MDL	44.2	13.3	2.2	0.3	1.1	1.4	2.8
	2011	2.5	-	-	0.3	-	-	0.6	53.6	8.3	-	0.7	8.5	1.7	6.9
TOC mg/kg dw	2006	1070	906	1080	870	1610	1180	1890	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	1200	1240	1800	1590	1430	1180	1920
	2009	1370	-	-	1900	-	-	3790	<MDL	3490	1630	4410	1960	3740	3050
	2011	1100	-	-	1170	-	-	1620	1080	2720	-	1920	1570	2000	5860

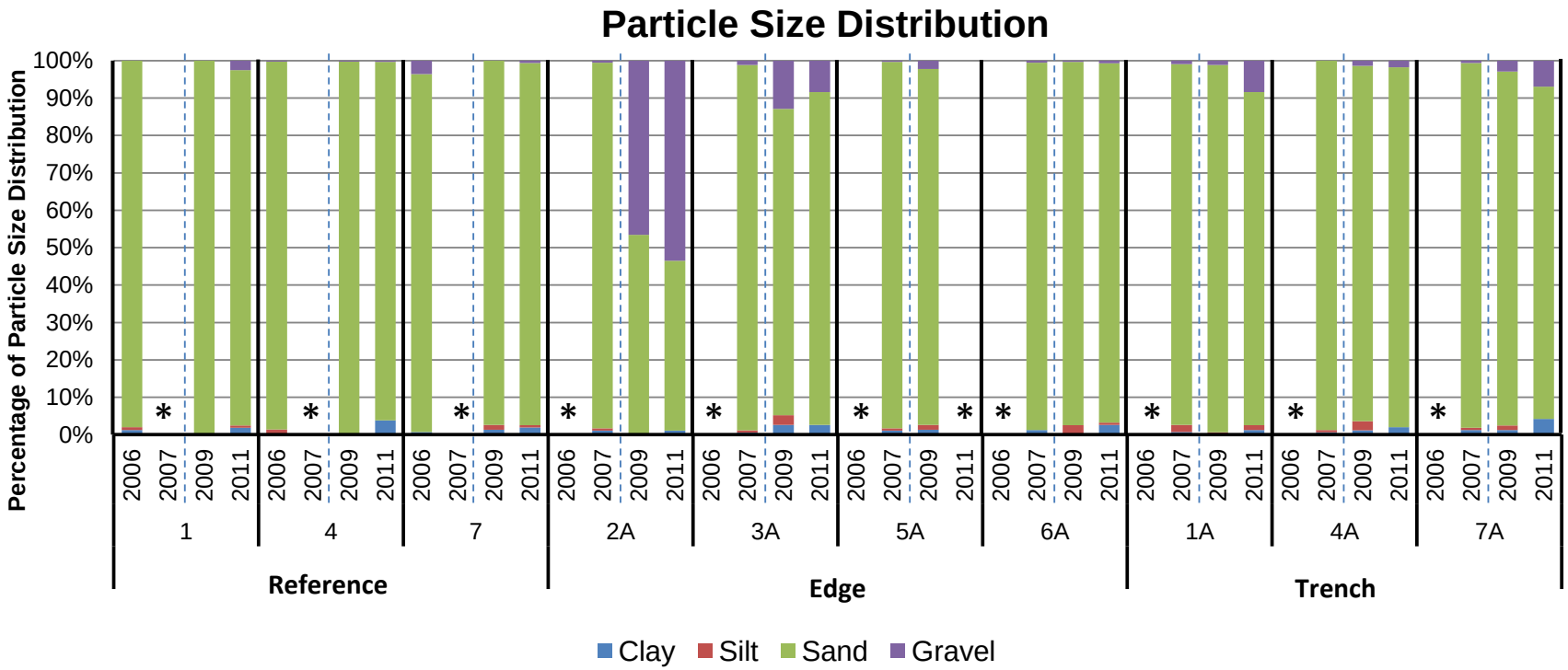

Figure 3. **Particle size distribution changes over time within or near the Brightwater trench corridor (2006-2011). Dashed lines indicate separation of pre- and post-construction samples. Stations with data only collected in 2006 (2,3,5, and 6) are excluded. ** = no sample collected***

3.1.2 Total Organic Carbon

Pre-construction monitoring indicated that TOC concentrations were low, similar to values elsewhere in Puget Sound with similar depth and PSD (Ecology, 2005). In general, TOC results less than 2,000 mg/kg on a dry weight (dw) basis are considered low for Puget Sound (Ecology, 1992). Percent TOC concentrations did vary significantly between 2006 (ranged from 870 to 1,890 mg/kg dw, mean = 1,230 mg/kg dw) and 2007 sampling stations (ranged from 1,180 to 1,920 mg/kg dw mean = 1,480 mg/kg dw) (Paired t-test, p = 0.002). This indicates that overall sediment characteristics were slightly different, although not likely biologically significant, between the two sets of pre-construction monitoring stations, which could be due to spatial and/or interannual variation.

TOC was much more variable post-construction, and ranged from below the method detection limit (MDL, < 500 mg/kg dw) to 5,900 mg/kg dw basis (mean = 2,600 mg/kg dw). Concentrations were generally the highest and also most variable post-construction, particularly at trench and edge stations (Table 2, Figure 4).

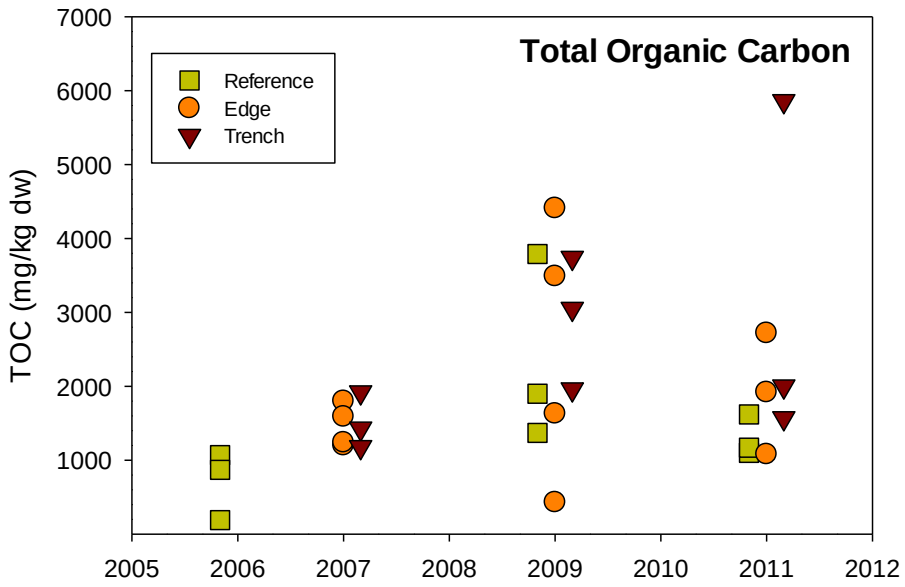

Figure 4. Total organic carbon (mg/kg dw) at stations from 2006 to 2011. Reference n = 3 (mean replicates from 3 stations, includes only those stations sampled all three years), Edge n = 4 (except for 2011, n = 3), Trench n = 3.

3.2 Benthic Community

A complete list of all species identified from each sampling event and calculated index values by replicate are available in Appendices E-H. The following sections summarize the results of benthic community indices, a detailed look at changes in specific taxa, and analysis of community composition via non-parametric multidimensional scaling.

3.2.1 Benthic Indices

There are several indices that can be used to evaluate benthic community assemblages and compare results between sites and sampling years. The indices used to assess changes in the benthic community during the course of the study are detailed in the following sections:

- Abundance – number of individual organisms per 0.1 m^2;
- Richness – number of taxa (species) per 0.1 m^2;
- Biomass – combined mass (weight) of all organisms in a 0.1 m^2 sample;
- Shannon-Wiener Diversity – measure of the number of taxa and the distribution/evenness of their abundance (calculated using Log_e);
- Pielou's Evenness – measure of the distribution of abundances among taxa (calculated using Log_e); and
- Swartz's Dominance– minimum number of species comprising 75% of the total abundance in a sample.

All of the index values discussed below are summarized as mean values for discussion purposes and are calculated for this study based on the mean of the three replicate samples collected from each station (See Table 3). These indices have been calculated from benthic fauna and include both infauna and epifauna to assess recovery of all species lost during trenching. Non-benthic or incidental taxa, such as pelagic species, were excluded from the analysis. In order to make datasets as comparable as possible over the six year time frame, taxa/species lists were standardized and every effort was taken to ensure comparability while preserving richness and abundance.

Abundance

Abundance at the reference stations sampled in 2006 ranged from 566 to 874 individuals per 0.1 m^2 (mean = 739) (Table 3). Despite being sampled at similar depths and close by (100 ft away), abundance values were higher at all stations in 2007 than in 2006, ranging from 888 to 2,106 individuals per 0.1 m^2 (mean = 1,576). Abundances at these pre-construction stations were significantly different (Paired t-test, $p < 0.001$). Because the same stations were not sampled multiple years during the pre-construction phase, it is not possible to determine the reason for these differences. In 2009, abundance was also elevated at reference stations (mean = 1,643).

Post-construction abundance values were variable by site and year and did not appear to be related to depth. Mean values for all station types were highest in 2007, decreased in 2009, and further decreased in 2011. In 2009, one year post-construction, mean abundances were lower at both edge and trench stations than at reference stations. By 2011, mean abundance values were similar at all station types (Figure 5).
At all reference stations, despite the abundance of major taxonomic groups varying by year similar to total abundance, there did not appear to have any overarching trends in the proportional abundance of those groups (Figure 6). Conversely, at both trench and edge

stations there were clear shifts in both abundance and percent abundances of major taxonomic groups from pre-construction samples (2007) to post-constructions samples (2009 and 2011) (Figure 6). For all edge and trench stations, the percent abundance of annelids increased in post-construction sampling; at one edge station (2A) the percent of annelids increased from 7% in 2007 to 67% of the total abundance in 2011. At the same time, percent abundance of molluscs decreased in post-construction samples at edge and trench station. The percent abundance of miscellaneous taxa increased slightly from 2007 thru 2011. Unlike annelids, molluscs, and miscellaneous taxa, percent abundance of crustaceans did not appear to vary greatly between years at trench or edge stations, with the exception of 5A, which had a large increase in crustacean abundance from 2007 to 2009.

Richness

Richness over the course of the study ranged from 38 to 138 taxa per 0.1 m^2. Richness was significantly different between pre-construction samples collected in 2006 and 2007 (Paired t-test, $p = 0.014$), as mean richness was higher in 2007 than in 2006 (95 vs. 80 taxa per 0.1m^2, respectively).

In general, richness was slightly higher at deeper stations than shallow stations sampled during the same event (Table 3). However, there were no clear temporal trends in species richness at any of the station types; for each station type there were some stations with reductions in richness from pre-construction values, while others increased (Table 3). By 2011, mean richness was slightly higher at both trench and edge stations than reference stations (Figure 5). Despite the number of taxa varying from year to year, the percent richness of the major taxonomic groups remained stable throughout the study at all station types with annelids accounting for the most species, followed by crustaceans and molluscs. Miscellaneous taxa accounted for the smallest portion (Figure 7).

Biomass

Total biomass is expressed in grams per 0.1 square meter wet weight (g/0.1 m^2 ww) and is the total mass of organisms collected in the sample. Biomass was significantly different between pre-construction samples collected in 2006 and 2007 (Paired t-test, $p = 0.002$). Biomass was higher in 2007, corresponding to the increase in abundance. Throughout the study, biomass varied by site and over time, which is typical as one or two large specimens can greatly affect the total mass of a sample. Station means during this time period ranged from 1.80 to 23.51 g/0.1 m^2 ww (mean = 7.54) (Table 3). In general, there was a reduction in total biomass at both trench and edge stations in 2009 as compared to reference values. The mean of trench and edge samples in 2009 were 6.28 and 6.06 g/0.1 m^2 ww respectively, while the mean of reference samples was nearly twice as high (11.44 g/0.1 m^2 ww) (Figure 5). Three years post-construction, total biomass at most trench and edge stations was similar or slightly higher than at reference stations with mean values of trench, edge, and reference stations of 9.28, 7.32, and 6.25 g/0.1 m^2 ww, respectively (Figure 5).

In all but two samples, miscellaneous taxa made up the lowest percent of biomass (Figure 8). At stations 2A and 7A in 2011 the percent biomass of miscellaneous taxa outweighed that of crustaceans. In those samples large numbers of the holothuroidean *Pentamera* spp. and Solasteridae (family of sea stars) were collected. Annelids made up a relatively small percent of total biomass in pre-construction samples at all station types, but that percent increased post-construction at all but one (6A) of the trench and edge stations (Figure 8).

Shannon-Wiener Diversity

The Shannon-Wiener diversity index is one of the most widely used diversity indices due to its ease of calculation and relative independence of sample size. The index uses the total number of taxa as well as the abundance of each taxon to summarize the diversity of a sample. The higher the index value, the more diverse the sample is. Pre-construction index values ranged from 2.23 to 3.51 (mean = 2.66) and did not significantly differ between 2006 and 2007 (Paired t-test, $p = 0.075$). Post-construction index values ranged from 1.78 to 3.24 at reference stations (mean = 2.42), which is similar to pre-construction values. Diversity was similar post-construction at trench and edge stations and ranged from 2.61 to 3.52 (mean = 3.14) and means were higher than at reference stations in both 2009 and 2011 (Table 3, Figure 5). For all years, diversity was higher at the deepest stations than at the shallowest stations (e.g., mean Shannon-Wiener Diversity from 2006 thru 2011 at stations 1 and 1A = 2.45 vs 7 and 7A = 3.30).

Pielou's Evenness

Pielou's Evenness index is another measure of diversity that is commonly used in conjunction with the Shannon-Wiener diversity index and is a measure of the observed diversity in a sample as a proportion of the maximum possible diversity. A value close to 1.0 represents a sample composed of many different species of similar abundance, while a value close to 0 represents a sample composed of only a few dominant species. Pre-construction index values ranged from 0.50 to 0.76 (mean = 0.60), but were significantly different in 2006 vs 2007 (Paired t-test, $p = 0.019$) with 2006 values being higher at all but one of the corresponding stations in 2007. Post-construction evenness values ranged from 0.43 to 0.84 (mean = 0.67) and were highest at trench stations in both 2009 and 2011, and lowest at reference stations (Figure 5).

Swartz's Dominance

Swartz's Dominance is another diversity indicator, which measures the minimum number of species whose abundance comprises 75% of the total sample abundance. A low value indicate that a sample has little diversity and few species in high numbers, while a large number indicates a sample is comprised of many species that are not dominant. Pre-construction index values ranged from 4 to 22 (Table 3), and were not significantly different in 2006 vs 2007 (Paired t-test, $p = 0.052$). Post-construction Swartz's dominance was much higher at both edge and trench stations than reference stations in 2009 and 2011 with a maximum mean of 18 occurring at trench stations in 2011; at reference stations the mean was 9 (Figure 5).

Table 3. Summary of benthic indices, average of three 0.1 m^2 replicate samples per station, at the Brightwater Outfall trench (2006-2011). Colonial species are not included in calculated values.

Station Type		Reference							Edge				Trench		
Station Name		BWT-BTHC-1	BWT-BTHC-2	BWT-BTHC-3	BWT-BTHC-4	BWT-BTHC-5	BWT-BTHC-6	BWT-BTHC -7	BWT-BTHC-2A	BWT-BTHC-3A	BWT-BTHC-5A	BWT-BTHC-6A	BWT-BTHC-1A	BWT-BTHC-4A	BWT-BTHC-7A
Abundance	2006	566	825	748	874	842	641	675	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	1617	1562	2106	1613	1412	1836	888
	2009	1876	-	-	2082	-	-	971	1601	1676	647	961	479	134	1508
	2011	481	-	-	639	-	-	755	1123	516	-	462	331	189	1563
Richness	2006	61	74	67	78	107	77	98	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	85	85	113	110	87	87	99
	2009	65	-	-	92	-	-	107	103	97	86	80	60	38	128
	2011	38	-	-	61	-	-	102	108	79	-	77	58	55	138
Biomass (g/0.1 m^2 ww)	2006	5.20	6.06	6.17	6.94	7.16	4.83	5.68	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	8.22	7.97	10.34	9.19	7.94	11.18	6.02
	2009	12.83	-	-	13.21	-	-	8.29	7.10	6.49	3.94	6.70	2.47	1.80	14.56
	2011	3.77	-	-	6.90	-	-	8.07	10.82	4.66	-	6.46	2.51	1.82	23.51
Shannon Diversity	2006	2.25	2.77	2.49	2.68	3.51	2.87	3.36	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	2.23	2.36	2.36	2.60	2.59	2.24	2.99
	2009	1.78	-	-	2.18	-	-	3.13	3.37	2.61	3.27	2.69	2.72	2.85	3.52
	2011	2.03	-	-	2.16	-	-	3.24	3.19	3.22	-	3.20	3.32	3.37	3.48
Pielou's Evenness	2006	0.55	0.64	0.59	0.62	0.76	0.66	0.73	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	0.50	0.53	0.50	0.55	0.58	0.50	0.65
	2009	0.43	-	-	0.48	-	-	0.67	0.73	0.57	0.74	0.61	0.67	0.78	0.73
	2011	0.56	-	-	0.52	-	-	0.70	0.68	0.74	-	0.74	0.82	0.84	0.71
Swartz's Dominance	2006	5	9	7	8	22	10	18	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	4	4	6	7	7	4	12
	2009	2	-	-	3	-	-	15	16	9	20	10	10	11	16
	2011	4	-	-	4	-	-	19	18	16	-	16	15	19	21

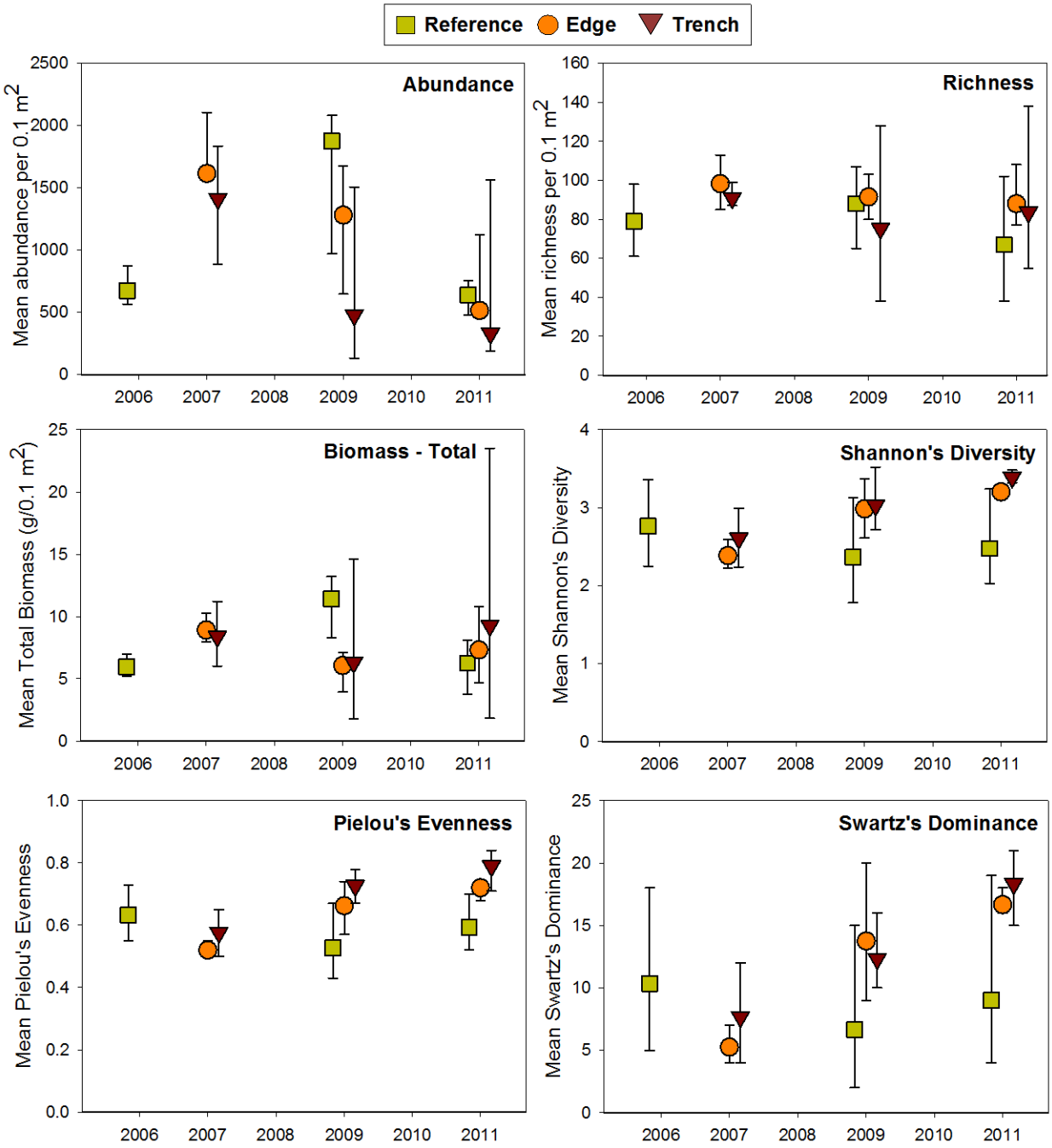

Figure 5. **Results of benthic indices at trench, edge, and reference stations from 2006 to 2011. Reference n = 3 (mean replicates from 3 stations, includes only those stations sampled all three years), Edge n = 4 (except for 2011, n = 3), Trench n = 3. Symbols indicate the mean; min and max indicated by dash.**

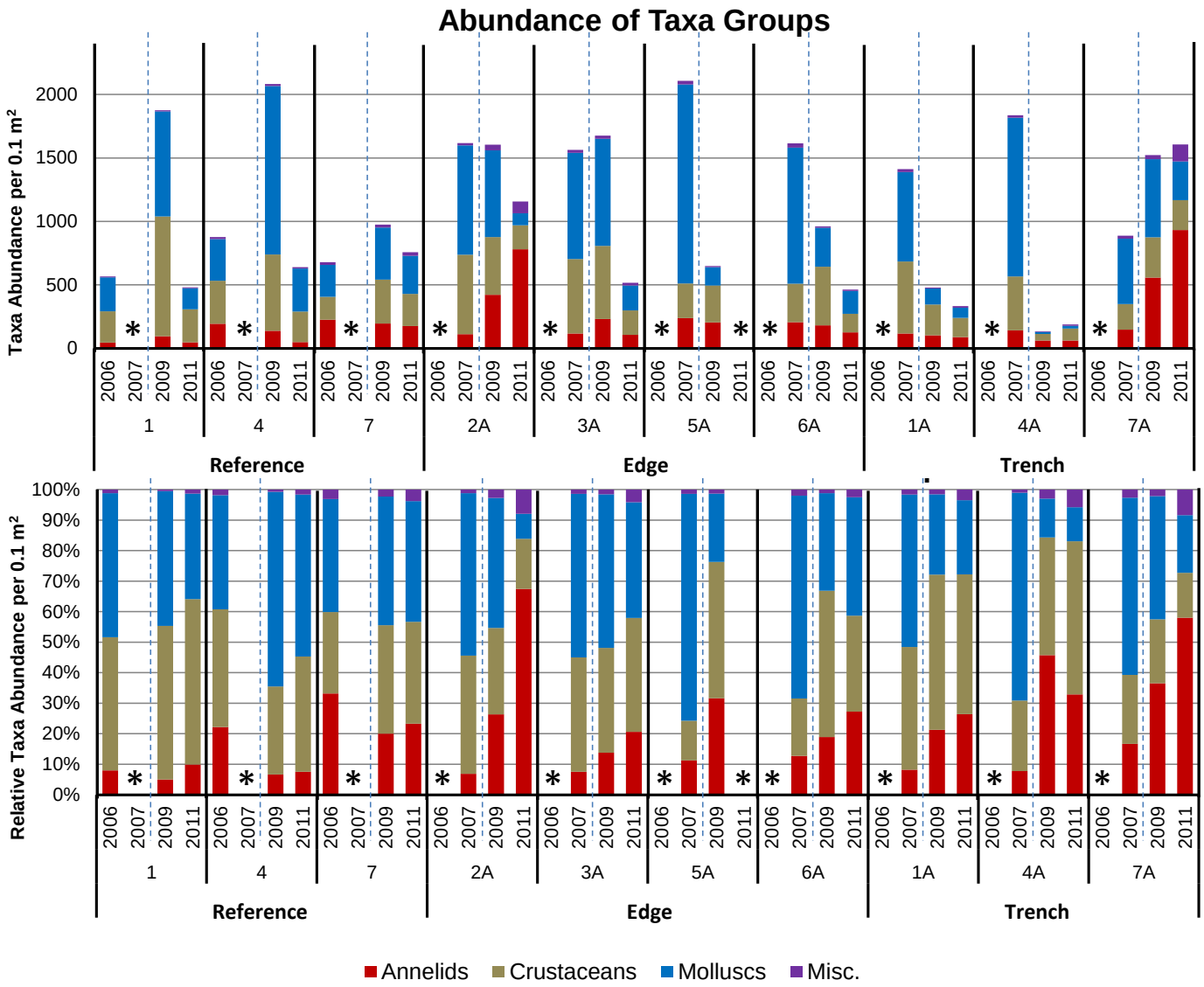

Figure 6. Abundance and relative abundance of major taxonomic groups at trench, edge, and reference stations (2006-2011). Dashed lines indicate separation of pre- and post-construction samples. Stations with data only collected in 2006 (2,3,5, and 6) are excluded. * *= no sample collected*

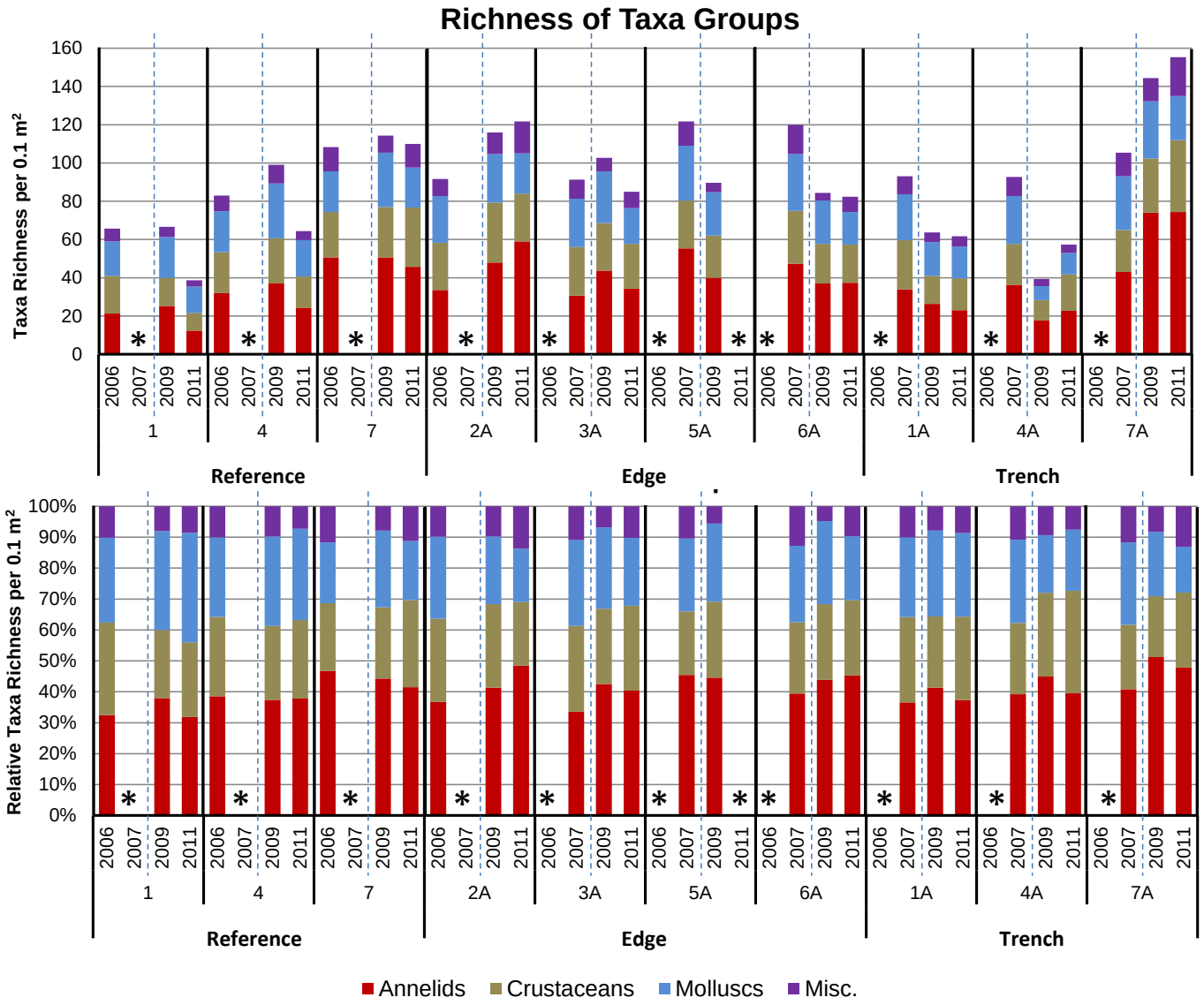

Figure 7. **Richness and percent richness of major taxonomic groups at trench, edge, and reference stations (2006-2011). Dashed lines indicate separation of pre- and post-construction samples. Stations with data only collected in 2006 (2,3,5, and 6) are excluded. * *= no sample collected***

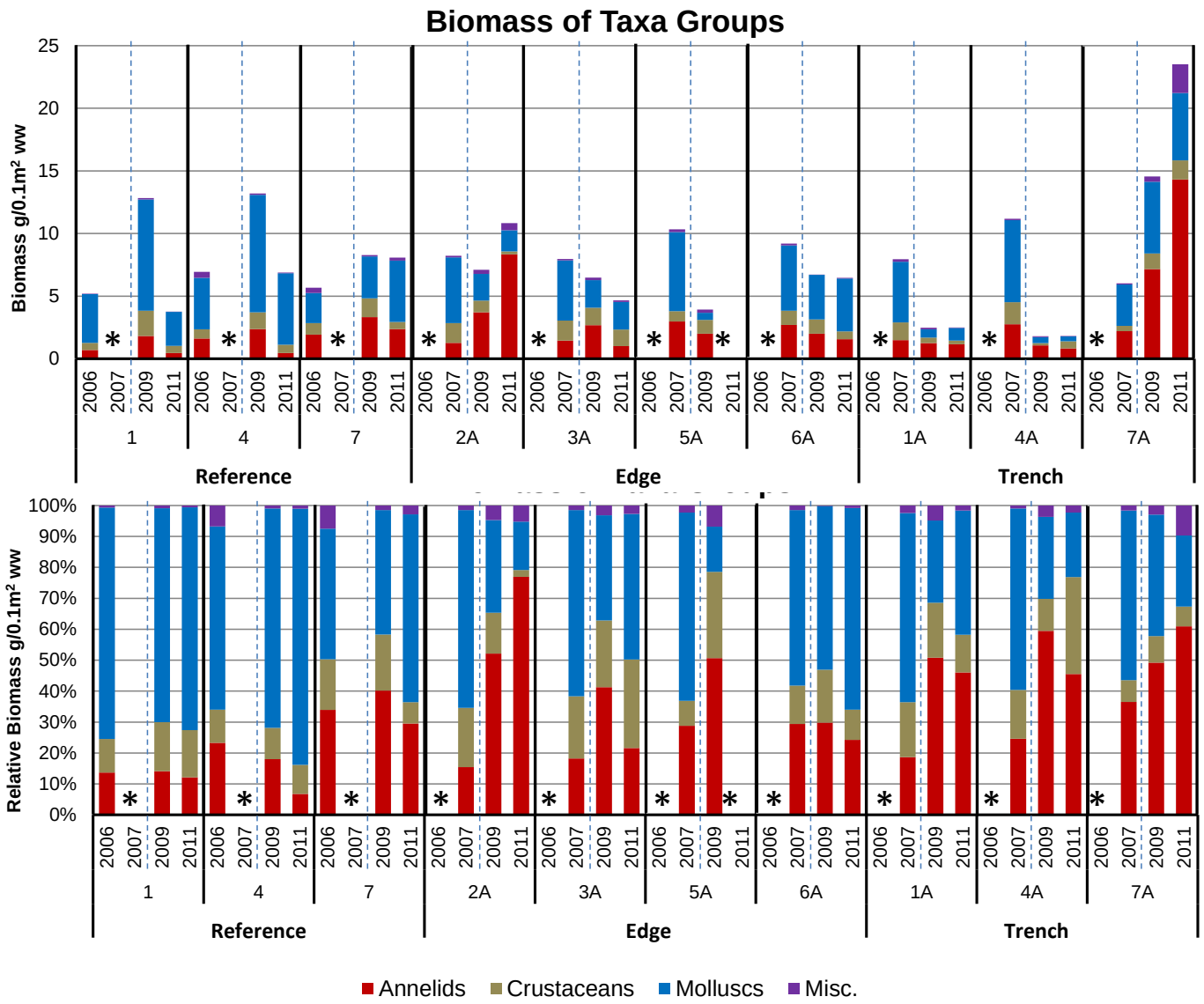

Figure 8. **Wet weight biomass and relative biomass of major taxonomic groups at trench, edge, and reference stations (2006-2011). Dashed lines indicate separation of pre- and post-construction samples. Stations with data only collected in 2006 (2,3,5, and 6) are excluded. * *= no sample collected***

3.2.2 Multidimensional Scaling

Multidimensional scaling (MDS) is a statistical tool that allows for the comparison of complex datasets composed of multiple variables (e.g., abundance values for many taxa in multiple samples). This technique allows for the visualization of multidimensional benthic community data in a two-dimensional space where samples that most closely resemble one another in taxa presence and abundance are grouped closer together and those more dissimilar to one another are oriented further apart.

Multidimensional community analyses were conducted in PRIMER v6. All replicate taxa abundances were averaged so that one value was used per station per year. The averaged values were fourth-root transformed to reduce the importance of dominant taxa and give weight to more rare taxa. Those values were used to produce an MDS plot based on the rank-ordered Bray Curtis similarity score of each sample. This unit-less plot provides a graphical representation of the multidimensional dataset that has been "flattened" to two dimensions to maximize the goodness of fit to the original dataset. The plot illustrates how similar the benthic communities are relative to all other samples based on their distance to one another (closer samples are more similar to one another).

In addition to the MDS analysis, a hierarchical cluster analysis was also conducted to quantify the degree of similarity of samples in relation to one another by linking samples based on their similarity from 0 to 100. Samples with 100 percent similarity would contain the same taxa and the same abundances. This analysis allows for distinguishing groups of samples with distinct community structures based on their shared percent similarity. These results are combined with the ordination plot (MDS) to produce a two-dimensional figure with circles (clusters) drawn around groups of samples based on their degree of similarity.

The resulting analysis and plot (Figure 9), demonstrates several important features of the benthic community over the course of the study. Stations generally grouped together based on years; this was particularly true for pre-construction samples. Post construction samples were more spread out. Secondly, stations tended to be arranged in order of depth with the shallowest stations (e.g., 1 and 1A) typically occurring furthest away from the deepest stations (e.g., 7 and 7A) sampled within the same year. This spatial pattern illustrates the importance of depth in benthic community composition. This linear pattern was less apparent in the more disparate post-construction samples. The less tightly grouped distribution for post-construction samples within the plot indicates that some disturbance had occurred.

These analyses demonstrate that nearly all samples grouped together by year based on species presence and abundance, with a few outliers (Figure 9). Reference stations sampled in 2006 were most like one another and group together in two-dimensional space, with deep samples being most different from shallow samples. Samples collected from reference stations in 2007 were even more similar to each other and grouped tightly.

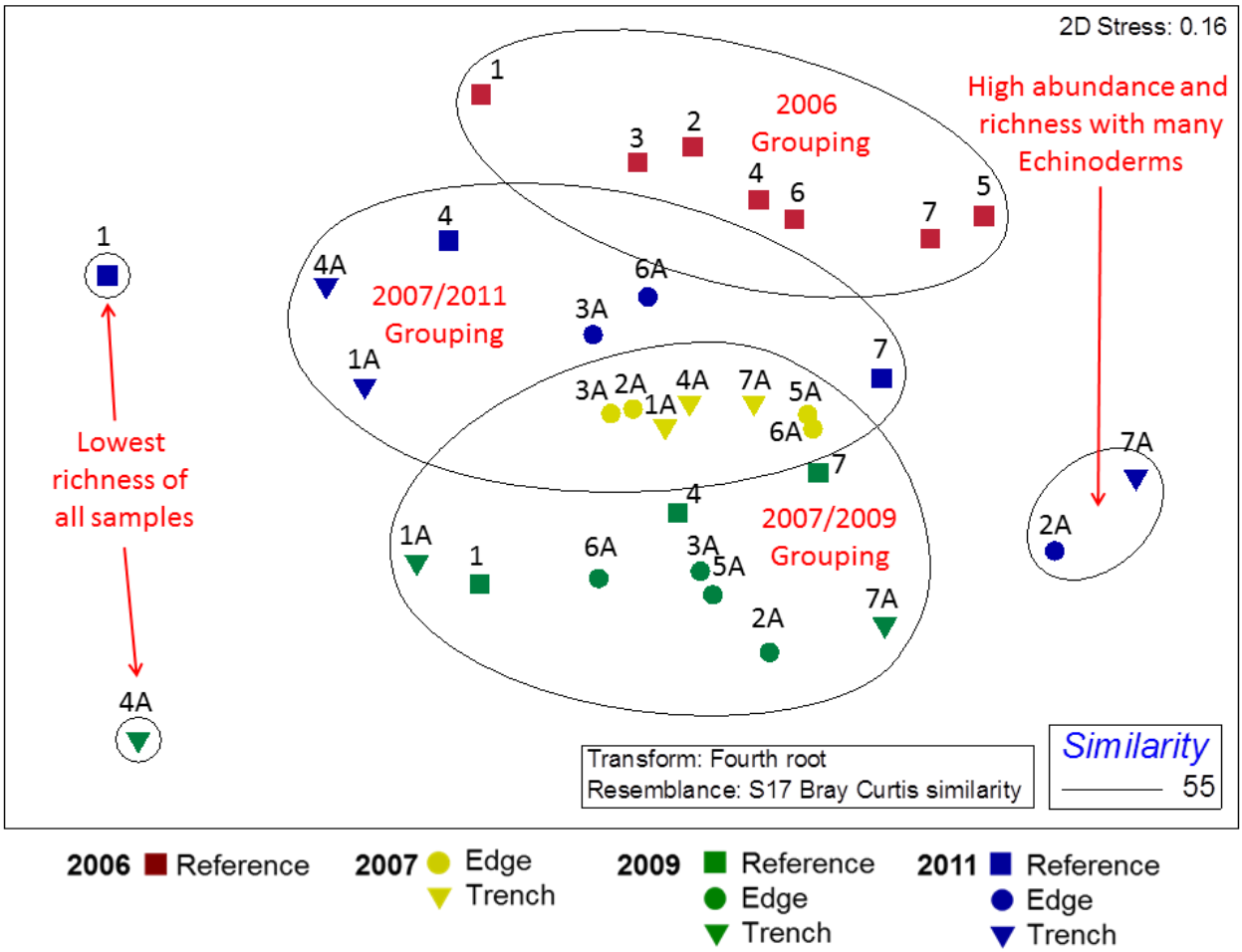

Figure 9. MDS plot of benthic community similarities from nearshore pre- and post-construction monitoring with culster analysis overlayed. Different colored circles represent diffent degrees of similarity. Degree of similarity between benthic communities (based on species presence and abundance) is depicted by relative closeness of samples to eachother (in unit-less distance values) on this map.

There was less similarity among samples collected within the same year in 2009 and 2011 than those collected in either 2006 or 2007. Most reference stations still grouped together in 2009 and 2011 along with trench and edge stations. In 2011 one edge sample (4A) did not group with other samples collected that year. This sample had extremely low abundance (134 individuals) and richness (38 taxa). Samples collected from that station during the following event grouped with others stations sampled in 2011.

By 2011 most stations clustered between the 2006 and 2007 samples, with the exception of three stations, one of which was a reference station (station 1) with the lowest richness of the study (38 taxa, the same as 4A in 2009). The other two stations, one trench and one edge station (7A and 2A, respectively), had very high richness and abundance, and included many indicators of a healthy benthic community such as large numbers of echinoderms (Figure 9). The benthic community at station 2A, which had the largest increase in percent gravel in both 2009 and 2011, more closely resembled the community at deeper stations in 2011, than those of similar depth such as 3A.

3.2.3 Taxa Composition Changes

All fauna were initially lost within the trench corridor, and potential disturbance occurred at nearby edge stations. Changes in presence and abundance of taxa thought to be drivers of the community occurred and are further examined below.

Shifts in Abundant and Indicator Taxa

The shifts in total abundance can be largely explained by changes in abundance of a few dominant species. In 2007 at trench and edge stations *Alvania compacta* (gastropod mollusc), *Parvilucina tenuisculpta* (bivalve mollusc), and *Euphilomedes carcharodonta* (ostracod crustacean) were the three most abundant species in all but 3 of 21 replicate samples. These three species accounted for over 50% of the total abundance in all samples collected in 2007. The abundance of these as well as many other abundant and indicator taxa changed throughout the study. These taxa can provide an understanding of the health of the benthic community.

Of the ten most abundant species collected throughout the study three were annelids, five were molluscs, and two were crustaceans, the changes in their presence and abundance over time, as well as presence and abundance of other indicator species are described below.

Annelids

Annelids, which include polychaete worms, are typically abundant in benthos samples collected from Puget Sound (Ecology, 2008). In very high numbers they can be indicators of a stressed environment. The three most abundant species of annelid during the course of the study included *Prionospio steenstrupi*, *Platynereis bicanaliculata*, and *Mediomastus californiensis*.

Prionospio steenstrupi is a stress-tolerant polychaete that can occur at high densities (Ecology, 2013). The number of individuals collected at each station increased in 2009 following trench construction, particularly at the deepest trench station (7A). The number of individuals collected in 2011 at most stations was back to pre-existing conditions but were very high at stations 2A and 7A where counts reached a maximum average of 392 per 0.1 m^2 (7A), which made the mean of trench and edge stations high in 2011 (Figure 10).

Platynereis bicanaliculata, an errant tube-forming polychaete, counts were high in 2006 and lower in 2007 demonstrating either interannual variation or spatial patchiness of densities. Counts were further reduced in 2009 possibly due to low recruitment and/or low migration, but increased slightly in 2011 nearing 2007 counts (Figure 10).

Mediomastus californiensis is a capitellid polychaete worm, a group of worms that are typically considered opportunistic and stress-tolerant (Weisberg et al., 2008, Ecology, 2013). They were collected in fairly consistent densities in 2006 and 2007 (~ 20 per sample). Post-construction this species was present at similar densities at some deeper

trench/edge stations (6A, 7A), but were present at lower abundances at other stations demonstrating patchy recruitment. This species increased slightly in abundance, at most non-reference stations in 2011 (Figure 10).

Although not one of the most abundant taxa, oligochaetes are another opportunistic group of annelids that can be indicators of degraded habitats (Weisberg et al., 2008). Oligochaetes, while present in nearly all pre-construction reference samples, were only collected post-construction at reference and edge stations (Figure 10).

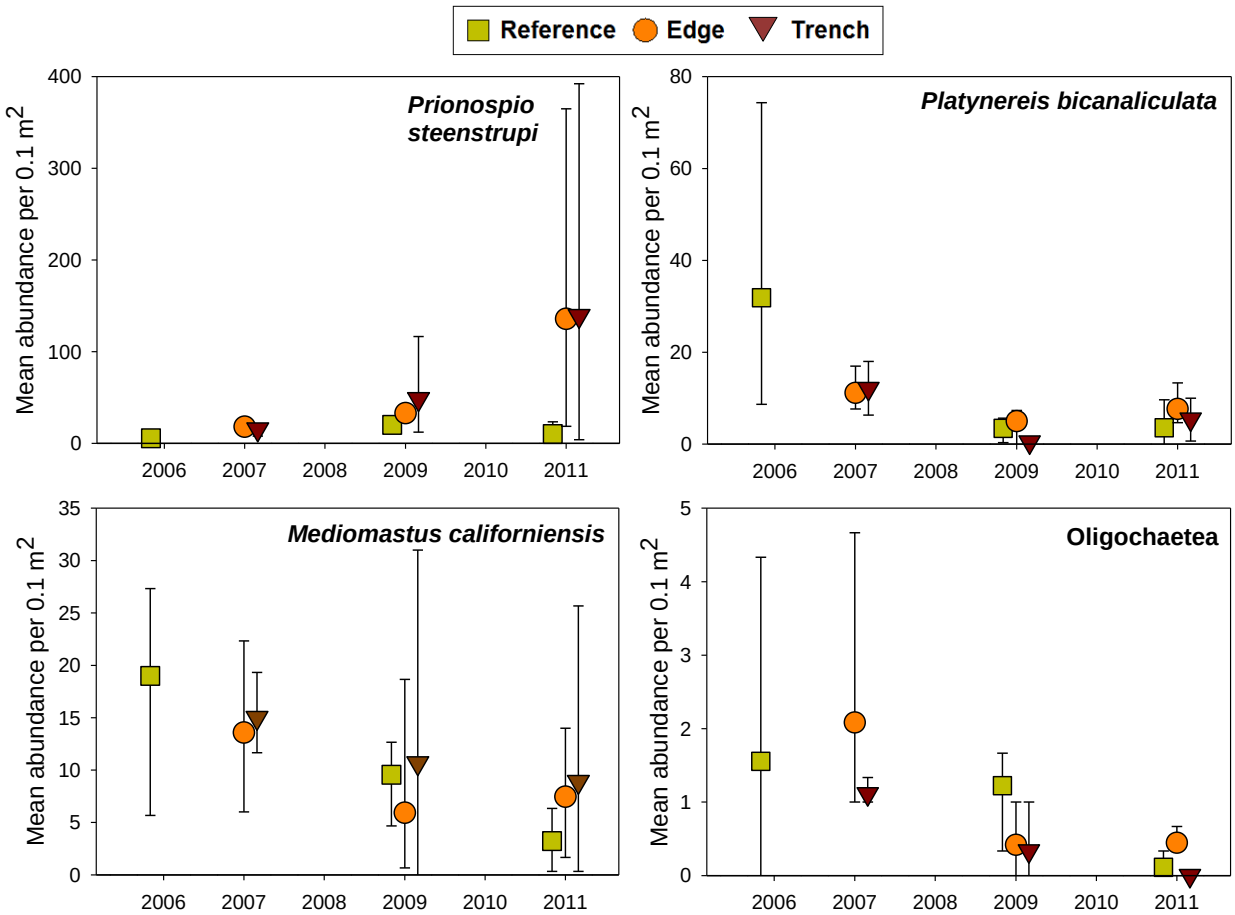

Figure 10. Abundance of the three most abundant annelid taxa and stress-tolerant oligochaetes at trench, edge, and reference stations from 2006 to 2011. Reference n = 3 (mean replicates from 3 stations, includes only those stations sampled all three years), Edge n = 4 (except for 2011, n = 3), Trench n = 3. Symbols indicate the mean; min and max indicated by dash.

Molluscs

Of the ten most abundant species in the study, five were molluscs: *Parvilucina tenuisculpta*, *Alvania compacta*, *Rochefortia tumida*, *Tellina modesta*, and *Axinopsida serricata*.

Parvilucina tenuisculpta is an opportunistic bivalve and is moderately stress tolerant (Weston, 1993; Ecology, 2013). It was abundant during both pre-construction sampling events and was reduced in 2009 at only trench and edge stations. By 2011 abundances increased at several stations, but trench station abundances were still lower than at comparable reference stations (Figure 11).

Alvania compacta is a small gastropod that can occur at high densities in samples collected from Puget Sound. This species was very abundant in 2007 (maximum mean at one station = 1,102) possibly due to a good recruitment year, since densities were an order of magnitude lower in 2006 and relatively low again at reference stations in 2009 and 2011. There were a few mid-depth stations that this species quickly colonized in 2009, but those stations also had fewer individuals in 2011 (Figure 11).

Rochefortia tumida, a bivalve mollusc common in sandy-muddy substrates, had a fairly consistent abundance throughout the study period with abundances returning to pre-construction conditions at most sites by 2009. Abundances decreased in 2011 at most reference stations as well (Figure 11).

Tellina modesta is another species of bivalve mollusc that was collected at relatively high densities. Abundances of this species varied annually with more individuals collected in 2007 than in 2006. Abundances were similar in 2009 to those of 2007 at most stations, but some station (particularly trench stations) had lower abundances. Abundances at all stations, including reference stations were the lowest in 2011 (Figure 11).

Axinopsida serricata, a bivalve thought to be slightly stress-tolerant (Ecology, 2013), occurred in low numbers, < 15 individuals per sample on average, pre-construction. The abundance of individuals increased at mid-depth stations (3A, 5A, 6A) in 2009 and 2011 (up to a mean of 63 at one station), while densities were low at other stations demonstrating that the population quickly reestablished at some stations, but only in patches. Mean abundance at reference stations remained similar throughout the study (Figure 11).

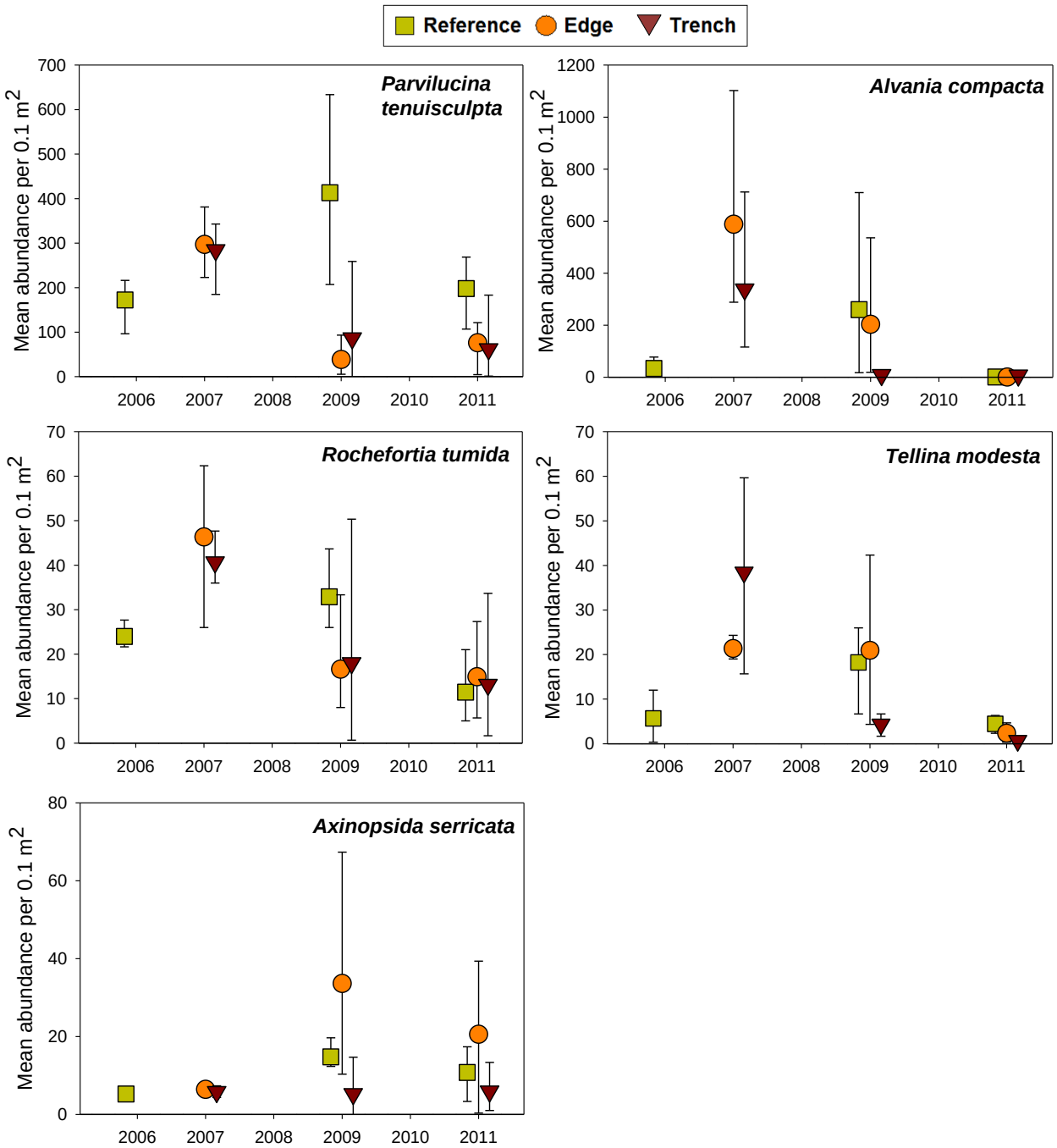

Figure 11. Abundance of the five most abundant mollusc taxa at trench, edge, and reference stations from 2006 to 2011. Reference n = 3 (mean replicates from 3 stations, includes only those stations sampled all three years), Edge n = 4 (except for 2011, n = 3), Trench n = 3. Symbols indicate the mean; min and max indicated by dash.

Crustaceans

Many species of arthropod crustaceans are stress sensitive, and have low abundance where pollutants are highest or where dissolved oxygen is lowest (Diaz and Rosenberg, 1995, Ecology, 2013). Therefore, crustacean abundance can be a good indicator of the health of

benthic community. Throughout the study, two species of crustacean (*Euphilomedes carcharodonta* and *Rhepoxynius abronius*) occurred at very high abundances.

Euphilomedes carcharodonta is an ostracod that is common on sandy bottoms of Puget Sound, typically in surface sediments (~ top 1 cm) and is known for having patchy distributions (Lie, 1968). This species occurred in similar abundances in 2006 and 2007. Post construction mean abundances were slightly lower in both 2009 and 2011 at trench and edge stations when compared to respective reference stations (Figure 12).

Rhepoxynius abronius is a stress sensitive burrowing species of amphipod that is widely distributed in sandy sediments of Puget Sound (Weston, 1993). Mean abundances appeared similar between 2006 and 2007, but decreased post-construction in 2009 at trench and edge stations. By 2011 abundances were similar to pre-construction values at most stations, but no individuals were collected at 2A or 7A (Figure 12).

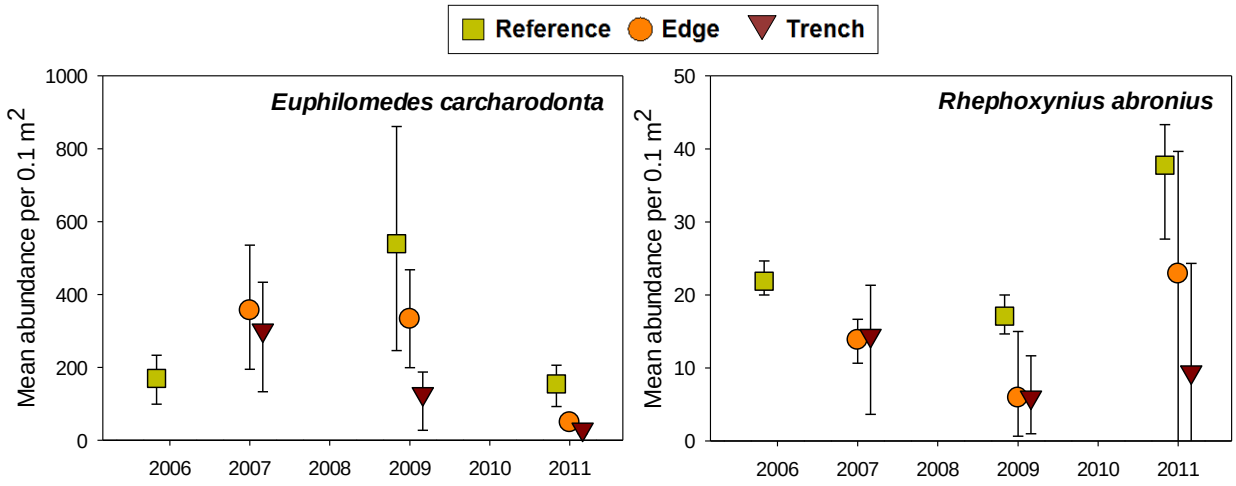

Figure 12. Abundance of the five most abundant crustacean taxa at trench, edge, and reference stations from 2006 to 2011. Reference n = 3 (mean replicates from 3 stations, includes only those stations sampled all three years), Edge n = 4 (except for 2011, n = 3), Trench n = 3. Symbols indicate the mean; min and max indicated by dash.

Miscellaneous taxa

Although no miscellaneous taxa were part of the most abundant taxa, they are important in determining the recovery of the benthic community. Echinoderms (such as brittle stars, sea cucumbers, sea stars, and heart urchins) and nemerteans (ribbon worms), in particular, are stress sensitive, and their presence usually indicates a healthy benthic habitat (Diaz and Rosenberg, 1995; Weisberg et al., 2008, Ecology, 2013).

Taxa that were commonly collected in the study include members of Paleonemertea, Ophiurida (brittle stars), *Pentamera* spp. (sea cucumber), and members of Solasteridae (sea stars). Mean Paleonemertea abundance was lower in 2006 than 2007, and by 2009

some stations had increased in abundance while others had not. By 2011, all trench stations had slightly higher abundances of Paleonemertea than their respective reference stations and were similar to pre-construction values (Figure 13). Ophiurida (brittle stars) were patchy in occurrence in 2006 but were collected at all stations in 2007. In both 2009 and 2011 they were patchy in occurrence and mean abundances were lower at trench and edge than reference stations (Figure 13). *Pentamera* spp. and Solasteridae, mean abundances were higher post-construction at trench and edge stations than pre-construction, particularly in 2011 and at stations 2A and 7A (Figure 13).

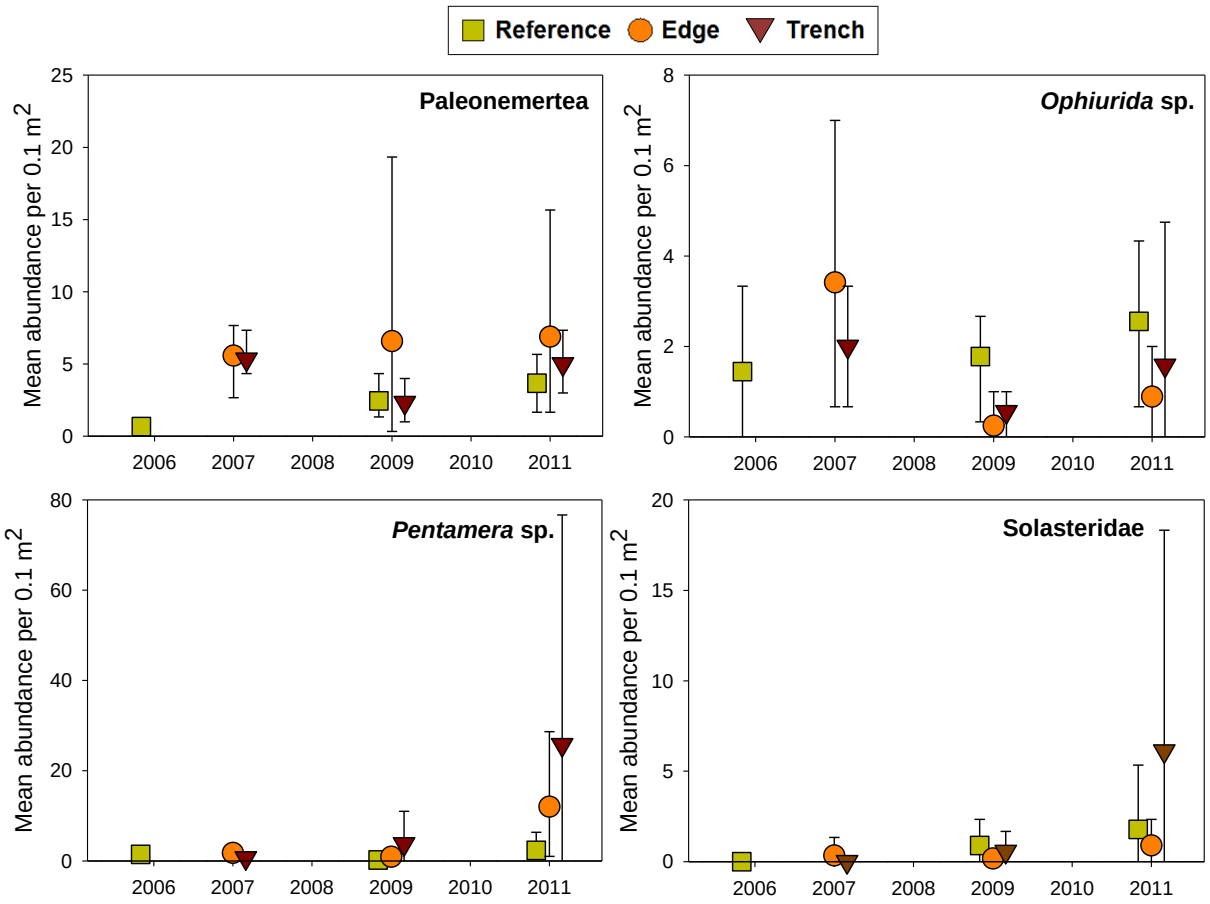

Figure 13. Abundance of Paleonemertea (ribbon worms) and three Echinodermata taxa at trench, edge, and reference stations from 2006 to 2011. Reference n = 3 (mean replicates from 3 stations, includes only those stations sampled all three years), Edge n = 4 (except for 2011, n = 3), Trench n = 3. Symbols indicate the mean; min and max indicated by dash.

Species Presence/Absence

A total of 474 taxa were identified over the course of the study. The majority of those taxa (377) were collected at more than one station and during both pre-construction and non-reference post-construction monitoring events (256). Nevertheless, 46% of identified taxa were only collected in pre-construction or post-construction events, but not both.

Of the 353 taxa identified in pre-construction samples, 97 were not collected in non-reference post-construction samples. The majority of these taxa (76) were rare, with three or fewer samples were collected. No taxa present in > 50% of pre-construction samples were absent from post-construction samples. However, individuals of Balanidae (acorn barnacles, 18 samples), *Aricidea wassi* (polychaete, 18 samples), *Buskia nitens* (bryozoan, 18 samples), *Westwoodilla caecula* (amphipod, 18 samples), *Phyllochaetopterus prolifica* (polychaete, 12 samples), and *Proceraea* sp. (polychaete, 11 samples) were identified in pre-construction but not trench/edge post-construction samples.

Alternatively, 359 taxa were identified in non-reference post-construction monitoring samples of which 103 of those were not collected in pre-construction samples. 79 of these taxa were rare and were collected in three or fewer post-construction samples. The most frequently occurring taxa absent from pre-construction samples included specimens of *Nutricola tantilla* (bivalve, 18 samples), *Spiophanes norrisi* (polychaete, 18 samples), *Nephasoma minutum* (sipunculid, 12 samples), harpacticoid copepods (12 samples), and *Notomastus lineatus* (polychaete, 11 samples).

All of those species collected in 10 or more pre-construction samples but not post-construction were also absent in post-construction reference samples with the exception of three samples with specimens of *Phyllochaetopterus prolifica*, two of Balanidae, and two of *Proceraea* sp. Only harpacticoid copepods, of the frequently collected post-construction taxa, were collected in only post-construction trench and edge samples (absent from reference samples).

4.0 DISCUSSION

4.1 Factors Affecting Benthic Community

Large interannual variations of subtidal and intertidal macroinvertebrates communities were observed, consistent with other studies in Puget Sound (Ecology, 1993; Nichols, 2003; Dethier and Berry, 2011). The variation can be due to changes in physical water and sediment properties, recruitment, and predation. Abundance, richness, biomass, and evenness were all significantly different between 2006 and 2007 samples. This could indicate either a spatial or temporal shifts in these indices, but it is most likely that those index values are influenced by interannual variability. For example, mean abundance at reference stations in 2009 were more than twice those values in 2006, and similar to those at pre-construction trench and edge stations in 2007 indicating that a wide range of abundance from year to year is likely normal. Similar patterns were seen for other indices.

In addition to interannual variation, depth and PSD can affect benthic communities (Ecology 2009, 2013). Due to the effect that PSD can have on the communities, care was taken to replace removed sediments to the same strata as they were removed. Nevertheless, differences in PSD, likely due to construction, were identified at several trench and edge stations when comparing pre-construction versus post-construction values. The largest change was seen in the percent gravel following construction at edge stations along the -50 ft MLLW bathymetric contour (2A and 3A). Although most trench and edge stations appeared to have an increase in gravel, 2A had the greatest change with gravel increasing from 0.5% in 2007 to 44.2% in 2009 and 53.6% in 2011; consequently, percent sand decreased at the stations where percent gravel had increased. This is an indication that construction impacts occurred within the area, including at edge stations. Other than the change in percent gravel and sand, PSD, including percent fines, was fairly consistent throughout the study, including at reference stations.

4.2 Evidence of Impacts and Recovery

The removal of all sediments within the excavated trench, laying of the pipe, and the replacement of those sediments devoid of life, had an impact on benthic communities surrounding the trenching corridor. Dethier and Berry (2011) found that the impact of Brightwater trench construction in the intertidal zone was limited to the 6 m width of the trench corridor, and that the area on either side of the trench was slightly impacted post-construction, but approached pre-construction conditions after two years. Similarly, based on the analysis of various benthic indices, multidimensional scaling analysis, and comparison of taxa abundances by year and station type, it is clear that edge and trench stations in the nearshore study area were impacted by construction and that natural recovery of the study area occurred during the three years following construction.

Recovery of the benthic community within impacted areas such as the trench corridor, is dependent on the species in the surrounding area and their mobility and life cycle

characteristics (Lewis et al., 2002). In 2009 mean abundance and richness were lower at edge and trench stations than at reference sites indicating an initial reduction in size of the benthic community post-construction. By 2011 mean abundance and biomass were similar (and slightly higher) than the mean of reference stations, indicating that recovery of denuded sites did occur, particularly after three years post-construction.

Taxa richness was similar throughout the study with some minor interannual variation at all station types during all years, indicating that many species were able to recolonize as soon as one year post-construction. Disturbance associated with construction may have increased the overall health of the benthic community as diversity, evenness, and dominance all increased at edge and trench stations, and were higher than mean reference station values in 2009 and 2011.

In general there was good overlap between pre- and post-construction taxa presence/absence (excluding rare taxa), a good indicator that the benthic communities at trench and edge stations had undergone recovery over the three years post-construction. Changes in abundance of specific taxa or taxa groups are informative to how the community was affected by construction. In general, annelids tend to be the taxon most tolerant of stressful conditions (e.g., disturbance, contamination, low dissolved oxygen), followed by molluscs, while crustaceans and echinoderms and some other miscellaneous taxa tend to be more sensitive.

A few stress-tolerant species such as the annelid *Prionospio steenstrupi* and mollusc *Axinopsida serricata* appeared in higher than baseline numbers in 2009 at trench and edge stations. This, along with the proportional increase in abundance of annelids (opportunistic, fast colonizers of disturbed or stressed habitats), indicates that the benthic community was somewhat influenced by stress-tolerant and opportunistic species one year after construction. The abundance of these tolerant species largely decreased in 2011 while more stress-sensitive species, such as the amphipod *Rhepoxynius abronius*, nemerteans, and echinoderms increased in abundance.

In looking at the community as a whole, MDS analysis demonstrated that there is separation between benthic communities largely based on year. The dissimilarity between samples from 2006 and 2007 indicates that there is likely much interannual variation. These pre-construction samples tightly group together based on the year they were sampled with samples most similar to those of similar depths. Post-construction benthic community samples were more variable with the largest differences between years seen between 2006 vs. 2009 samples. In both 2009 and 2011, most trench and edge samples grouped together with samples collected in 2007, with more similarity between 2007 samples than with each other, or between 2007 and 2006 reference stations. Two stations (7A, trench and 2A, edge [station with the greatest increase in percent gravel post-construction]) in 2011 did not group with 2007 or other 2011 samples. These two stations were most similar to each other despite the difference in depth. They had very high benthic index values such as richness and diversity and contained the largest numbers taxa that indicate a very healthy benthic community. Trench and edge stations both appeared to be affected by construction, but the effects were generally more obvious at trench stations,

which had slightly higher indices of dominance, evenness, and diversity. By 2011 it appears that the benthic community had recovered to conditions prior to construction, with a few outliers that reflect a healthy benthic community.

Construction impacts may have also lead to changes in physical properties of the sediments. In addition to changes in PSD, changes in TOC were observed post-construction. Mean TOC was higher at edge and trench stations than at reference stations post-construction. The ongoing process of recolonization of the sediment by macroinvertebrates and bacteria communities may have affected the organic content surrounding the construction zone.

Lewis et al. (2002) demonstrated in a similar study that one month after disturbance there were no live invertebrate specimens after construction, but gradual recolonization occurred with no significant difference in abundance after six months. This study collected samples as early as one year after sampling, at which point many species had recolonized the disturbed habitat. Therefore although there was some evidence of an impact by disturbance in the benthic community, it was likely not as obvious as if samples had been collected less than six months post-construction. Initially, the disturbed site was likely to be rapidly colonized by opportunistic and stress-tolerant species. But, the disturbance at trench and edge stations caused by removing and replacing the sediments allowed for recolonization to occur leading to higher evenness, diversity, and dominance (positive indicators of benthic health) and similar abundance and biomass than at reference stations by 2011.

5.0 CONCLUSIONS

Despite the loss of fauna due to disturbance, many habitats are able to recover quickly either through recruitment or mobility of adults, often within one year. The impact within the study area was slightly noticeable one year post-construction and greatest, as expected, at stations within the trench corridor. Edge stations on the periphery of the trench also appeared to be initially impacted by the construction, possibly due to the restored sediments overflowing onto the nearby seafloor. In the future, if the purpose of similar studies includes capturing the process of recolonization, it is recommended that samples be collected sooner than one year post-construction, ideally one month, three months, six months, one year, and three years prior.

As of 2011, the benthic communities at trench and edge stations sampled from the Brightwater nearshore study area were more diverse than at nearby reference stations. Benthic community indices at the trenched and edge stations in 2011 indicated a community with characteristics considered healthier than those at reference stations. Those initially impacted communities will continue to mature with additional succession, and any future benthic samples from those stations will likely be indistinguishable from samples taken from reference stations. No further monitoring of the benthic community at the Brightwater outfall's nearshore trench area is recommended at this time.

6.0 REFERENCES

APHA. 1998. Standard Methods for the Examination of Water and Wastewater. 20th Edition. American Public Health Association. Washington, DC.

ASTM. 2002. Standard test method for particle-size analysis of soils D422-63(2002). American Society for Testing and Materials, West Conshohocken, PA.

Dethier, M.N. and H.D. Berry. 2011. Impacts of the construction of the Brightwater Marine Outfall on intertidal biotic communities. Report prepared for the Washington State Department of Natural Resources, Olympia, WA.

Diaz, R.J. and R. Rosenberg. 1995. Marine benthic hypoxia: A review of its ecological effects and the behavioural responses of benthic macrofauna. *Oceanography and Marine Biology: an Annual Review* 33: 245-303.

Ecology. 1992. Technical information memorandum, organic carbon normalization of sediment data. Prepared by Teresa Michelsen for the Washington State Department of Ecology Sediment Management Unit, Olympia, Washington.

Ecology. 1993. Recommendations for assessing adverse benthic effects in Puget Sound. Prepared by PTI Environmental Services for the Washington Department of Ecology, Sediment Management Unit, Olympia, WA.

Ecology. 2003. Chemical contamination, acute toxicity in laboratory tests, and benthic impacts in sediments of Puget Sound: Summary of results of the joint 1997-1999 Ecology/NOAA survey. Publication No. 03-03-049. Washington State Department of Ecology, Environmental Assessment Program, Olympia, WA.

Ecology. 2005. Temporal monitoring of Puget Sound sediments: Results of the Puget Sound ambient monitoring program, 1989-2000. Publication No. 05-03-016. Washington State Department of Ecology, Environmental Assessment Program, Olympia, WA.

Ecology. 2008. Sediment Quality Assessment of the bays and inlets of the San Juan Islands, Eastern Strait of Juan de Fuca, and Admiralty Inlet, 2002-2003. Publication No. 08-03-030. Washington State Department of Ecology, Environmental Assessment Program, Olympia, WA.

Ecology. 2009. Urban Waters Initiative, 2007: Sediment quality in Elliott Bay. Publication No. 09-03-014. Washington State Department of Ecology, Environmental Assessment Program, Olympia, WA.

Ecology. 2013. Development of Puget Sound benthic indicators. Publication No. 13-03-035. Prepared by the Southern California Coastal Water Research Project for the Washington State Department of Ecology, Environmental Assessment Program, Olympia, WA.

King County. 2006. Brightwater outfall construction trench – nearshore benthic community characterization – final sampling and analysis plan. King County, Department of Natural Resources and Parks, Seattle, WA.

King County. 2007. Brightwater outfall construction trench – nearshore benthic community characterization – sampling and analysis plan addendum. King County, Department of Natural Resources and Parks, Seattle, WA.

Lewis, L.J., J. Davenport, and T.C. Kelly. 2002. A study of the impact of a pipeline construction on estuarine benthic invertebrate communities. *Estuarine, Coastal and Shelf Science* 55:213-221.

Lie, U. 1968. A quantitative study of benthic infauna in Puget Sound, Washington, USA, in 1963-1964. *Fiskeridirektoratets Skrifter: Serie Havundersøkelser*, 14(5):229-556.

Nichols, F.M. 2003. Interdecadal change in the deep Puget Sound benthos. *Hydrobiologia* 493:95-114.

PSEP. 1986. Recommended protocols for measuring conventional sediment variables in Puget Sound. Prepared for the Puget Sound Estuary Program (U.S. Environmental Protection Agency Region 10) by Tetra Tech, Inc., Seattle, WA.

PSEP. 1987. Recommended protocols for sampling and analyzing subtidal benthic macroinvertebrate assemblages in Puget Sound. Prepared for the Puget Sound Estuary Program (U.S. Environmental Protection Agency Region 10) by Tetra Tech, Inc., Seattle, WA.

PSEP. 1997. Recommended guidelines for sampling marine sediment, water column, and tissue in Puget Sound. Prepared for the Puget Sound Estuary Program (U.S. Environmental Protection Agency Region 10) by the King County Environmental Laboratory, Seattle, WA.

WDFW. 2005. Hydraulic Project Approval Control No: 100180-1. Washington State Department of Fish and Wildlife, Mill Creek, WA.

WDNR. 2006. Aquatic Lands Outfall Easement No. 51-076776. Washington State Department of Natural Resources, Olympia, WA.

Weston, R.F. 1993. Evaluation of techniques for assessing benthic endpoints for use in Puget Sound sediment management programs. Prepared for the Washington State Department of Ecology, Olympia, WA.

Weisberg, S.B., B. Thompson, J.A. Ranasinghe, D.E. Montagne, D.B. Cadien, D.M. Dauer, D. Diener, J. Oliver, D.J. Reish, R.G. Velarde, and J.Q. Word. 2008. The level of agreement among experts applying best professional judgement to assess the condition of benthic infaunal communities. *Ecological Indicators* 8:389-394.

Appendix A: 2006 Sediment Data

Table A-1 2006 physical sediment properties by station. *TOC* = total organic carbon*

Locator: BWT-BTHC-1					
Date: 10/05/06		**Depth:** 12 m			
Sample #: L40537-1		**% Solids:** 77.7			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1070	mg/Kg		380	769
Fines	2	%		0.5	1
Clay	1.3	%		0.5	1
Silt	0.7	%	<RDL	0.5	1
Sand	98.8	%		0.1	1
Gravel		%	<MDL	0.1	1
≥ p+10.0	1.3	%		0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00	0.7	%	<RDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	3	%		0.1	1
p+3.00	40	%		0.1	1
p+2.00	53.1	%		0.1	1
p+1.00	2.3	%		0.1	1
p+0.00	0.4	%	<RDL	0.1	1
p-1.00		%	<MDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-2					
Date: 10/05/06		**Depth:** 15 m			
Sample #: L40537-2		**% Solids:** 76.2			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	906	mg/Kg	<RDL	370	741
Fines	1.3				
Clay	0.6				
Silt	0.6	%	<RDL	0.5	1
Sand	97	%		0.1	1
Gravel	0.3				
≥ p+10.0	0.6	%	<RDL	0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00	0.6	%	<RDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	3.5	%		0.1	1
p+3.00	43.5	%		0.1	1
p+2.00	48.1	%		0.1	1
p+1.00	1.8	%		0.1	1
p+0.00	0.2	%	<RDL	0.1	1
p-1.00	0.3	%	<RDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-3					
Date: 10/05/06		**Depth:** 15 m			
Sample #: L40537-3		**% Solids:** 74.2			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1080	mg/Kg		370	733
Fines	0.6	%	<RDL	0.5	1
Clay		%	<MDL	0.5	1
Silt	0.6	%	<RDL	0.5	1
Sand	97.6	%		0.1	1
Gravel		%	<MDL	0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00	0.6	%	<RDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	3.8	%		0.1	1
p+3.00	43.5	%		0.1	1
p+2.00	47.8	%		0.1	1
p+1.00	2.1	%		0.1	1
p+0.00	0.3	%	<RDL	0.1	1
p-1.00		%	<MDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-4					
Date: 10/03/06		**Depth:** 23 m			
Sample #: L40537-4		**% Solids:** 69.0			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	870	mg/Kg	<RDL	330	660
Fines	1.4	%		0.5	1
Clay		%	<MDL	0.5	1
Silt	1.4	%		0.5	1
Sand	98.2	%		0.1	1
Gravel	0.2	%	<RDL	0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00	0.7	%	<RDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00	0.7	%	<RDL	0.5	1
p+4.00	4.4	%		0.1	1
p+3.00	44.8	%		0.1	1
p+2.00	46.4	%		0.1	1
p+1.00	2.3	%		0.1	1
p+0.00	0.3	%	<RDL	0.1	1
p-1.00	0.2	%	<RDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-5					
Date: 10/03/06		Depth: 29 m			
Sample #: L40537-5		% Solids: 74.1			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1610	mg/Kg		370	733
Fines	2	%		0.5	1
Clay	1.3	%		0.5	1
Silt	0.7	%	<RDL	0.5	1
Sand	95.4	%		0.1	1
Gravel	0.9	%	<RDL	0.1	1
≥ p+10.0	0.7	%	<RDL	0.5	1
p+9.00	0.7	%	<RDL	0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00	0.7	%	<RDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	6.5	%		0.1	1
p+3.00	43.3	%		0.1	1
p+2.00	42.5	%		0.1	1
p+1.00	2.5	%		0.1	1
p+0.00	0.6	%	<RDL	0.1	1
p-1.00	0.6	%	<RDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00	0.3	%	<RDL	0.1	1

Locator: BWT-BTHC-6					
Date: 10/03/06		Depth: 27 m			
Sample #: L40537-6		% Solids: 73.6			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1180	mg/Kg		370	731
Fines	1.3	%		0.5	1
Clay		%	<MDL	0.5	1
Silt	1.3	%		0.5	1
Sand	97.6	%		0.1	1
Gravel	0.7	%	<RDL	0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00	0.7	%	<RDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00	0.7	%	<RDL	0.5	1
p+4.00	5.7	%		0.1	1
p+3.00	42.1	%		0.1	1
p+2.00	47	%		0.1	1
p+1.00	2.3	%		0.1	1
p+0.00	0.4	%	<RDL	0.1	1
p-1.00	0.2	%	<RDL	0.1	1
p-2.00	0.4	%	<RDL	0.1	1
< p-2.00	0.1	%	<RDL	0.1	1

Locator: BWT-BTHC-7					
Date: 10/03/06		Depth: 31 m			
Sample #: L40537-7		% Solids: 73.2			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1890	mg/Kg		360	717
Fines	0.7	%	<RDL	0.5	1
Clay	0.7	%	<RDL	0.5	1
Silt		%	<MDL	0.5	1
Sand	94.4	%		0.1	1
Gravel	3.5	%		0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00	0.7	%	<RDL	0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	7.4	%		0.1	1
p+3.00	45.2	%		0.1	1
p+2.00	39.3	%		0.1	1
p+1.00	2.4	%		0.1	1
p+0.00	0.2	%	<RDL	0.1	1
p-1.00	0.6	%	<RDL	0.1	1
p-2.00	0.1	%	<RDL	0.1	1
< p-2.00	2.7	%		0.1	1

This page intentionally left blank.

Appendix B: 2007 Sediment Data

Table B-1 2007 physical sediment properties by station. *TOC* = total organic carbon*

Locator: BWT-BTHC-1A					
Date: 10/08/07		**Depth:** 10 m			
Sample #: L44146-1		**% Solids:** 75.6			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1430	mg/Kg		370	741
Fines	2.6	%		0.5	1
Clay	0.7	%	<RDL	0.5	1
Silt	1.9	%		0.5	1
Sand	95.6	%		0.1	1
Gravel	0.9	%	<RDL	0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00	0.7	%	<RDL	0.5	1
p+8.00	1.3	%		0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00	0.7	%	<RDL	0.5	1
p+4.00	2.5	%		0.1	1
p+3.00	26.6	%		0.1	1
p+2.00	62.3	%		0.1	1
p+1.00	3.6	%		0.1	1
p+0.00	0.7	%	<RDL	0.1	1
p-1.00	0.4	%	<RDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00	0.5	%	<RDL	0.1	1

Locator: BWT-BTHC-2A					
Date: 10/08/07		**Depth:** 15 m			
Sample #: L44146-2		**% Solids:** 75.7			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1200	mg/Kg		380	760
Fines	1.7	%		0.5	1
Clay	1.1	%		0.5	1
Silt	0.6	%	<RDL	0.5	1
Sand	97.6	%		0.1	1
Gravel	0.5	%	<RDL	0.1	1
≥ p+10.0	1.1	%		0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00	0.6	%	<RDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	2.9	%		0.1	1
p+3.00	28.9	%		0.1	1
p+2.00	62.3	%		0.1	1
p+1.00	3	%		0.1	1
p+0.00	0.5	%	<RDL	0.1	1
p-1.00	0.3	%	<RDL	0.1	1
p-2.00	0.2	%	<RDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-3A					
Date: 10/08/07		**Depth:** 16 m			
Sample #: L44146-3		**% Solids:** 74.2			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1240	mg/Kg		360	730
Fines	1.3	%		0.5	1
Clay	0.6	%	<RDL	0.5	1
Silt	0.6	%	<RDL	0.5	1
Sand	96.9	%		0.1	1
Gravel	1.1	%		0.1	1
≥ p+10.0	0.6	%	<RDL	0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00	0.6	%	<RDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	2.6	%		0.1	1
p+3.00	31.4	%		0.1	1
p+2.00	59.4	%		0.1	1
p+1.00	3	%		0.1	1
p+0.00	0.5	%	<RDL	0.1	1
p-1.00	0.3	%	<RDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00	0.7	%	<RDL	0.1	1

Locator: BWT-BTHC-4A					
Date: 10/08/07		**Depth:** 22 m			
Sample #: L44146-4		**% Solids:** 74.8			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1180	mg/Kg		370	733
Fines	1.2	%		0.5	1
Clay	0.6	%	<RDL	0.5	1
Silt	0.6	%	<RDL	0.5	1
Sand	95.8	%		0.1	1
Gravel		%	<MDL	0.1	1
≥ p+10.0	0.6	%	<RDL	0.5	1
p+9.00		%	<MDL	0.5	1
p+8.00	0.6	%	<RDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	3.6	%		0.1	1
p+3.00	37.1	%		0.1	1
p+2.00	52.3	%		0.1	1
p+1.00	2.6	%		0.1	1
p+0.00	0.3	%	<RDL	0.1	1
p-1.00		%	<MDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-5A					
Date: 10/08/07		Depth: 27 m			
Sample #: L44146-5		% Solids: 73.9			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1800	mg/Kg		370	735
Fines	1.6	%		0.5	1
Clay	1.1	%		0.5	1
Silt	0.6	%	<RDL	0.5	1
Sand	98.1	%		0.1	1
Gravel	0.3	%	<RDL	0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00	1.1	%		0.5	1
p+8.00	0.6	%	<RDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	4.6	%		0.1	1
p+3.00	37.8	%		0.1	1
p+2.00	53	%		0.1	1
p+1.00	2.4	%		0.1	1
p+0.00	0.3	%	<RDL	0.1	1
p-1.00	0.2	%	<RDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-6A					
Date: 10/08/07		Depth: 28 m			
Sample #: L44146-6		% Solids: 77.6			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1590	mg/Kg		370	737
Fines	1.2	%		0.5	1
Clay	1.2	%		0.5	1
Silt		%	<MDL	0.5	1
Sand	94.9	%		0.1	1
Gravel	0.5	%	<RDL	0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00	1.2	%		0.5	1
p+8.00		%	<MDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	4.3	%		0.1	1
p+3.00	38.6	%		0.1	1
p+2.00	49.3	%		0.1	1
p+1.00	2.3	%		0.1	1
p+0.00	0.4	%	<RDL	0.1	1
p-1.00	0.4	%	<RDL	0.1	1
p-2.00	0.2	%	<RDL	0.1	1
< p-2.00		%	<MDL	0.1	1

Locator: BWT-BTHC-7A					
Date: 10/08/07		Depth: 32 m			
Sample #: L44146-7		% Solids: 75.4			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1920	mg/Kg		360	724
Fines	1.7	%		0.5	1
Clay	1.2	%		0.5	1
Silt	0.6	%	<RDL	0.5	1
Sand	94.7	%		0.1	1
Gravel	0.6	%	<RDL	0.1	1
≥ p+10.0		%	<MDL	0.5	1
p+9.00	1.2	%		0.5	1
p+8.00	0.6	%	<RDL	0.5	1
p+7.00		%	<MDL	0.5	1
p+6.00		%	<MDL	0.5	1
p+5.00		%	<MDL	0.5	1
p+4.00	6	%		0.1	1
p+3.00	46.4	%		0.1	1
p+2.00	39.8	%		0.1	1
p+1.00	2.2	%		0.1	1
p+0.00	0.3	%	<RDL	0.1	1
p-1.00	0.3	%	<RDL	0.1	1
p-2.00		%	<MDL	0.1	1
< p-2.00	0.3	%	<RDL	0.1	1

This page intentionally left blank.

Appendix C: 2009 Sediment Data

Table C-1 2009 physical sediment properties by station. *TOC* = total organic carbon*

Locator: BWT-BTHC-1					
Date: 10/05/09		**Depth:** 15 m			
Sample #: L49254-8		**% Solids:** 79.0			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1370	mg/Kg		390	788
Fines					
Clay					
Silt		%	<MDL	0.65	1.3
Sand	96.1	%		0.13	1.3
Gravel		%	<MDL	0.13	1.3
≥ p+10.0		%	<MDL	0.65	1.3
p+9.00		%	<MDL	0.65	1.3
p+8.00		%	<MDL	0.65	1.3
p+7.00		%	<MDL	0.65	1.3
p+6.00		%	<MDL	0.65	1.3
p+5.00		%	<MDL	0.65	1.3
p+4.00	4.5	%		0.13	1.3
p+3.00	40.2	%		0.13	1.3
p+2.00	47.2	%		0.13	1.3
p+1.00					
p+0.00					
p-1.00		%	<MDL	0.13	1.3
p-2.00		%	<MDL	0.13	1.3
< p-2.00		%	<MDL	0.13	1.3

Locator: BWT-BTHC-1A					
Date: 10/05/09		**Depth:** 13 m			
Sample #: L49254-1		**% Solids:** 74.4			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1960	mg/Kg		370	746
Fines	0.66	%	<RDL	0.66	1.32
Clay		%	<MDL	0.66	1.32
Silt	0.66	%	<RDL	0.66	1.32
Sand	95.7	%		0.13	1.32
Gravel	1.1	%		0.13	1.32
≥ p+10.0		%	<MDL	0.66	1.32
p+9.00		%	<MDL	0.66	1.32
p+8.00		%	<MDL	0.66	1.32
p+7.00		%	<MDL	0.66	1.32
p+6.00		%	<MDL	0.66	1.32
p+5.00	0.66	%	<RDL	0.66	1.32
p+4.00	6.9	%		0.13	1.32
p+3.00	36.8	%		0.13	1.32
p+2.00	45.6	%		0.13	1.32
p+1.00	5.2	%		0.13	1.32
p+0.00	1.1	%		0.13	1.32
p-1.00	1.1	%		0.13	1.32
p-2.00		%	<MDL	0.13	1.32
< p-2.00		%	<MDL	0.13	1.32

Locator: BWT-BTHC-2A					
Date: 10/05/09		**Depth:** 16 m			
Sample #: L49254-2		**% Solids:** 85.7			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*		mg/Kg	<MDL	430	856
Fines		%	<MDL	0.52	1.04
Clay		%	<MDL	0.52	1.04
Silt		%	<MDL	0.52	1.04
Sand	50.7	%		0.1	1.04
Gravel	44.2	%		0.1	1.04
≥ p+10.0		%	<MDL	0.52	1.04
p+9.00		%	<MDL	0.52	1.04
p+8.00		%	<MDL	0.52	1.04
p+7.00		%	<MDL	0.52	1.04
p+6.00		%	<MDL	0.52	1.04
p+5.00		%	<MDL	0.52	1.04
p+4.00	2	%		0.1	1.04
p+3.00	12.9	%		0.1	1.04
p+2.00	13.8	%		0.1	1.04
p+1.00	10.2	%		0.1	1.04
p+0.00	11.8	%		0.1	1.04
p-1.00	18.6	%		0.1	1.04
p-2.00	6.1	%		0.1	1.04
< p-2.00	19.5	%		0.1	1.04

Locator: BWT-BTHC-3A					
Date: 10/05/09		**Depth:** 18 m			
Sample #: L49254-3		**% Solids:** 73.3			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	3490	mg/Kg		370	738
Fines	5.5	%		0.69	1.37
Clay	2.7	%		0.69	1.37
Silt	2.7	%		0.69	1.37
Sand	84.7	%		0.14	1.37
Gravel	13.3	%		0.14	1.37
≥ p+10.0	2.7	%		0.69	1.37
p+9.00		%	<MDL	0.69	1.37
p+8.00		%	<MDL	0.69	1.37
p+7.00		%	<MDL	0.69	1.37
p+6.00	1.4	%		0.69	1.37
p+5.00	1.4	%		0.69	1.37
p+4.00	7.6	%		0.14	1.37
p+3.00	49.5	%		0.14	1.37
p+2.00	22.6	%		0.14	1.37
p+1.00	3.4	%		0.14	1.37
p+0.00	1.6	%		0.14	1.37
p-1.00	0.8	%	<RDL	0.14	1.37
p-2.00		%	<MDL	0.14	1.37
< p-2.00	12.5	%		0.14	1.37

Locator: BWT-BTHC-4					
Date: 10/05/09		Depth: 23 m			
Sample #: L49254-9		% Solids: 72.5			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1900	mg/Kg		380	763
Fines		%	<MDL	0.64	1.28
Clay		%	<MDL	0.64	1.28
Silt		%	<MDL	0.64	1.28
Sand	95.7	%		0.13	1.28
Gravel	0.2	%	<RDL	0.13	1.28
≥ p+10.0		%	<MDL	0.64	1.28
p+9.00		%	<MDL	0.64	1.28
p+8.00		%	<MDL	0.64	1.28
p+7.00		%	<MDL	0.64	1.28
p+6.00		%	<MDL	0.64	1.28
p+5.00		%	<MDL	0.64	1.28
p+4.00	6.8	%		0.13	1.28
p+3.00	40.5	%		0.13	1.28
p+2.00	42.2	%		0.13	1.28
p+1.00	5	%		0.13	1.28
p+0.00	1.1	%		0.13	1.28
p-1.00	0.2	%	<RDL	0.13	1.28
p-2.00		%	<MDL	0.13	1.28
< p-2.00		%	<MDL	0.13	1.28

Locator: BWT-BTHC-4A					
Date: 10/05/09		Depth: 22 m			
Sample #: L49254-4		% Solids: 74.1			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	3740	mg/Kg		370	742
Fines	3.7	%		0.61	1.22
Clay	1.2	%		0.61	1.22
Silt	2.4	%		0.61	1.22
Sand	94.7	%		0.12	1.22
Gravel	1.4	%		0.12	1.22
≥ p+10.0	1.2	%		0.61	1.22
p+9.00		%	<MDL	0.61	1.22
p+8.00	1.2	%		0.61	1.22
p+7.00		%	<MDL	0.61	1.22
p+6.00		%	<MDL	0.61	1.22
p+5.00	1.2	%		0.61	1.22
p+4.00	8.2	%		0.12	1.22
p+3.00	51.4	%		0.12	1.22
p+2.00	30.9	%		0.12	1.22
p+1.00	3.1	%		0.12	1.22
p+0.00	1	%	<RDL	0.12	1.22
p-1.00	0.8	%	<RDL	0.12	1.22
p-2.00		%	<MDL	0.12	1.22
< p-2.00	0.6	%	<RDL	0.12	1.22

Locator: BWT-BTHC-5A					
Date: 10/05/09		Depth: 25 m			
Sample #: L49254-5		% Solids: 74.9			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1630	mg/Kg		370	747
Fines	2.6	%		0.64	1.29
Clay	1.3	%		0.64	1.29
Silt	1.3	%		0.64	1.29
Sand	94.4	%		0.13	1.29
Gravel	2.2	%		0.13	1.29
≥ p+10.0	1.3	%		0.64	1.29
p+9.00		%	<MDL	0.64	1.29
p+8.00		%	<MDL	0.64	1.29
p+7.00		%	<MDL	0.64	1.29
p+6.00		%	<MDL	0.64	1.29
p+5.00	1.3	%		0.64	1.29
p+4.00	10.4	%		0.13	1.29
p+3.00	50.2	%		0.13	1.29
p+2.00	27.6	%		0.13	1.29
p+1.00	4.3	%		0.13	1.29
p+0.00	2	%		0.13	1.29
p-1.00	1.9	%		0.13	1.29
p-2.00	0.2	%	<RDL	0.13	1.29
< p-2.00		%	<MDL	0.13	1.29

Locator: BWT-BTHC-6A					
Date: 10/05/09		Depth: 27 m			
Sample #: L49254-6		% Solids: 71.5			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	4410	mg/Kg		360	724
Fines	2.5	%		0.61	1.23
Clay		%	<MDL	0.61	1.23
Silt	2.5	%		0.61	1.23
Sand	95.4	%		0.12	1.23
Gravel	0.3	%	<RDL	0.12	1.23
≥ p+10.0		%	<MDL	0.61	1.23
p+9.00		%	<MDL	0.61	1.23
p+8.00	1.2	%		0.61	1.23
p+7.00		%	<MDL	0.61	1.23
p+6.00		%	<MDL	0.61	1.23
p+5.00	1.2	%		0.61	1.23
p+4.00	11.4	%		0.12	1.23
p+3.00	59.6	%		0.12	1.23
p+2.00	22.4	%		0.12	1.23
p+1.00	1.5	%		0.12	1.23
p+0.00	0.5	%	<RDL	0.12	1.23
p-1.00	0.3	%	<RDL	0.12	1.23
p-2.00		%	<MDL	0.12	1.23
< p-2.00		%	<MDL	0.12	1.23

Locator: BWT-BTHC-7					
Date: 10/05/09		Depth: 30 m			
Sample #: L49254-10		% Solids: 73.1			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	3790	mg/Kg		360	725
Fines	2.6	%		0.65	1.31
Clay	1.3	%		0.65	1.31
Silt	1.3	%		0.65	1.31
Sand	97.1	%		0.13	1.31
Gravel		%	<MDL	0.13	1.31
≥ p+10.0	1.3	%		0.65	1.31
p+9.00		%	<MDL	0.65	1.31
p+8.00		%	<MDL	0.65	1.31
p+7.00		%	<MDL	0.65	1.31
p+6.00		%	<MDL	0.65	1.31
p+5.00	1.3	%		0.65	1.31
p+4.00	8.8	%		0.13	1.31
p+3.00	47.8	%		0.13	1.31
p+2.00	37.6	%		0.13	1.31
p+1.00	2.4	%		0.13	1.31
p+0.00	0.4	%	<RDL	0.13	1.31
p-1.00		%	<MDL	0.13	1.31
p-2.00		%	<MDL	0.13	1.31
< p-2.00		%	<MDL	0.13	1.31

Locator: BWT-BTHC-7A					
Date: 10/05/09		Depth: 29 m			
Sample #: L49254-7		% Solids: 73.4			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	3050	mg/Kg		370	737
Fines	2.4	%		0.6	1.2
Clay	1.2	%		0.6	1.2
Silt	1.2	%		0.6	1.2
Sand	91.4	%		0.12	1.2
Gravel	2.8	%		0.12	1.2
≥ p+10.0	1.2	%		0.6	1.2
p+9.00		%	<MDL	0.6	1.2
p+8.00		%	<MDL	0.6	1.2
p+7.00		%	<MDL	0.6	1.2
p+6.00		%	<MDL	0.6	1.2
p+5.00	1.2	%		0.6	1.2
p+4.00	4.5	%		0.12	1.2
p+3.00	35.1	%		0.12	1.2
p+2.00	44.7	%		0.12	1.2
p+1.00	5	%		0.12	1.2
p+0.00	2.1	%		0.12	1.2
p-1.00	2.2	%		0.12	1.2
p-2.00	0.3	%	<RDL	0.12	1.2
< p-2.00	0.3	%	<RDL	0.12	1.2

Appendix D: 2011 Sediment Data

Table D-1 2011 physical sediment properties by station. *TOC* = total organic carbon*

Locator: BWT-BTHC-1					
Date: 10/03/11		**Depth:** 18 m			
Sample #: L54225-8		**% Solids:** 74.3			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1100	mg/Kg		380	765
Fines	2.5	%		0.63	1.26
Clay	1.9	%		0.63	1.26
Silt	0.6	%	<RDL	0.63	1.26
Sand	95.6	%		0.13	1.26
Gravel	2.5	%		0.13	1.26
≥ p+10.0	1.9	%		0.63	1.26
p+9.00		%	<MDL	0.63	1.26
p+8.00		%	<MDL	0.63	1.26
p+7.00		%	<MDL	0.63	1.26
p+6.00		%	<MDL	0.63	1.26
p+5.00	0.6	%	<RDL	0.63	1.26
p+4.00	2.9	%		0.13	1.26
p+3.00	39.7	%		0.13	1.26
p+2.00	50	%		0.13	1.26
p+1.00	2.5	%		0.13	1.26
p+0.00	0.5	%	<RDL	0.13	1.26
p-1.00	0.4	%	<RDL	0.13	1.26
p-2.00		%	<MDL	0.13	1.26
< p-2.00	2.1	%		0.13	1.26

Locator: BWT-BTHC-1A					
Date: 10/03/11		**Depth:** 17 m			
Sample #: L54225-1		**% Solids:** 75.8			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1570	mg/Kg		390	784
Fines	2.5	%		0.63	1.26
Clay	1.3	%	RDL	0.63	1.26
Silt	1.3	%	RDL	0.63	1.26
Sand	90.0	%		0.13	1.26
Gravel	8.5	%		0.13	1.26
≥ p+10.0	1.3	%	RDL	0.63	1.26
p+9.00		%	<MDL	0.63	1.26
p+8.00		%	<MDL	0.63	1.26
p+7.00		%	<MDL	0.63	1.26
p+6.00		%	<MDL	0.63	1.26
p+5.00	1.3	%	RDL	0.63	1.26
p+4.00	3.9	%		0.13	1.26
p+3.00	31.2	%		0.13	1.26
p+2.00	48.2	%		0.13	1.26
p+1.00	5.2	%		0.13	1.26
p+0.00	1.6	%		0.13	1.26
p-1.00	1.1	%	<RDL	0.13	1.26
p-2.00	1.1	%	<RDL	0.13	1.26
< p-2.00	6.3	%		0.13	1.26

Locator: BWT-BTHC-2A					
Date: 10/03/11		**Depth:** 21 m			
Sample #: L54225-2		**% Solids:** 82.9			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	1080	mg/Kg		420	839
Fines	1.1	%	RDL	0.54	1.08
Clay	1.1	%	RDL	0.54	1.08
Silt		%	<MDL	0.54	1.08
Sand	45.5	%		0.11	1.08
Gravel	53.6	%		0.11	1.08
≥ p+10.0	1.1	%	RDL	0.54	1.08
p+9.00		%	<MDL	0.54	1.08
p+8.00		%	<MDL	0.54	1.08
p+7.00		%	<MDL	0.54	1.08
p+6.00		%	<MDL	0.54	1.08
p+5.00		%	<MDL	0.54	1.08
p+4.00	1.4	%		0.11	1.08
p+3.00	8.9	%		0.11	1.08
p+2.00	11.8	%		0.11	1.08
p+1.00	10.6	%		0.11	1.08
p+0.00	12.8	%		0.11	1.08
p-1.00	19.7	%		0.11	1.08
p-2.00	7.7	%		0.11	1.08
< p-2.00	26.2	%		0.11	1.08

Locator: BWT-BTHC-3A					
Date: 10/03/11		**Depth:** 21 m			
Sample #: L54225-3		**% Solids:** 74.0			
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	2720	mg/Kg		380	750
Fines	2.6	%		0.65	1.29
Clay	2.6	%		0.65	1.29
Silt		%	<MDL	0.65	1.29
Sand	88.3	%		0.13	1.29
Gravel	8.3	%		0.13	1.29
≥ p+10.0	1.9	%		0.65	1.29
p+9.00		%	<MDL	0.65	1.29
p+8.00		%	<MDL	0.65	1.29
p+7.00		%	<MDL	0.65	1.29
p+6.00		%	<MDL	0.65	1.29
p+5.00		%	<MDL	0.65	1.29
p+4.00	7	%		0.13	1.29
p+3.00	45.8	%		0.13	1.29
p+2.00	28.7	%		0.13	1.29
p+1.00	4.9	%		0.13	1.29
p+0.00	1.9	%		0.13	1.29
p-1.00	1.8	%		0.13	1.29
p-2.00	0.4	%	<RDL	0.13	1.29
< p-2.00	6.1	%		0.13	1.29

Locator: BWT-BTHC-4					
Date: 10/03/11		Depth: 23 m			
Sample #: L54225-9		% Solids: 76.0			
Parameter	Value	Units	Qual.	MDL	RDL
TOC*	1170	mg/Kg		380	766
Fines	3.9	%		0.65	1.3
Clay	3.9	%		0.65	1.3
Silt		%	<MDL	0.65	1.3
Sand	97.1	%		0.13	1.3
Gravel	0.3	%	<RDL	0.13	1.3
≥ p+10.0	2.6	%		0.65	1.3
p+9.00	1.3	%	RDL	0.65	1.3
p+8.00		%	<MDL	0.65	1.3
p+7.00		%	<MDL	0.65	1.3
p+6.00		%	<MDL	0.65	1.3
p+5.00		%	<MDL	0.65	1.3
p+4.00	5.7	%		0.13	1.3
p+3.00	37	%		0.13	1.3
p+2.00	48.2	%		0.13	1.3
p+1.00	5.2	%		0.13	1.3
p+0.00	1	%	<RDL	0.13	1.3
p-1.00	0.3	%	<RDL	0.13	1.3
p-2.00		%	<MDL	0.13	1.3
< p-2.00		%	<MDL	0.13	1.3

Locator: BWT-BTHC-4A					
Date: 10/03/11		Depth: 27 m			
Sample #: L54225-4		% Solids: 73.2			
Parameter	Value	Units	Qual.	MDL	RDL
TOC*	2000	mg/Kg		370	737
Fines	2.6	%		0.66	1.32
Clay	2.0	%		0.66	1.32
Silt		%	<MDL	0.66	1.32
Sand	94.8	%		0.13	1.32
Gravel	1.7	%		0.13	1.32
≥ p+10.0	2	%		0.66	1.32
p+9.00		%	<MDL	0.66	1.32
p+8.00		%	<MDL	0.66	1.32
p+7.00		%	<MDL	0.66	1.32
p+6.00		%	<MDL	0.66	1.32
p+5.00		%	<MDL	0.66	1.32
p+4.00	9.8	%		0.13	1.32
p+3.00	53.9	%		0.13	1.32
p+2.00	28.4	%		0.13	1.32
p+1.00	2.1	%		0.13	1.32
p+0.00	0.6	%	<RDL	0.13	1.32
p-1.00	0.5	%	<RDL	0.13	1.32
p-2.00		%	<MDL	0.13	1.32
< p-2.00	1.2	%	<RDL	0.13	1.32

Locator: BWT-BTHC-6A					
Date: 10/03/11		Depth: 29 m			
Sample #: L54225-6		% Solids: 75.0			
Parameter	Value	Units	Qual.	MDL	RDL
TOC*	1920	mg/Kg		370	750
Fines	3.2	%		0.65	1.3
Clay	2.6	%		0.65	1.3
Silt	0.6	%	<RDL	0.65	1.3
Sand	95.3	%		0.13	1.3
Gravel	0.7	%	<RDL	0.13	1.3
≥ p+10.0	1.9	%		0.65	1.3
p+9.00	0.6	%	<RDL	0.65	1.3
p+8.00		%	<MDL	0.65	1.3
p+7.00		%	<MDL	0.65	1.3
p+6.00		%	<MDL	0.65	1.3
p+5.00	0.6	%	<RDL	0.65	1.3
p+4.00	11.9	%		0.13	1.3
p+3.00	52.6	%		0.13	1.3
p+2.00	25.1	%		0.13	1.3
p+1.00	4	%		0.13	1.3
p+0.00	1.6	%		0.13	1.3
p-1.00	0.6	%	<RDL	0.13	1.3
p-2.00	0.1	%	<RDL	0.13	1.3
< p-2.00		%	<MDL	0.13	1.3

Locator: BWT-BTHC-7					
Date: 10/03/11		Depth: 32 m			
Sample #: L54225-10		% Solids: 74.5			
Parameter	Value	Units	Qual.	MDL	RDL
TOC*	1620	mg/Kg		380	759
Fines	2.5	%		0.62	1.24
Clay	1.9	%		0.62	1.24
Silt	0.6	%	<RDL	0.62	1.24
Sand	94.7	%		0.12	1.24
Gravel	0.6	%	<RDL	0.12	1.24
≥ p+10.0	1.9	%		0.62	1.24
p+9.00		%	<MDL	0.62	1.24
p+8.00		%	<MDL	0.62	1.24
p+7.00	0.6	%	<RDL	0.62	1.24
p+6.00		%	<MDL	0.62	1.24
p+5.00		%	<MDL	0.62	1.24
p+4.00	8.4	%		0.12	1.24
p+3.00	43.6	%		0.12	1.24
p+2.00	39.7	%		0.12	1.24
p+1.00	2.5	%		0.12	1.24
p+0.00	0.4	%	<RDL	0.12	1.24
p-1.00	0.2	%	<RDL	0.12	1.24
p-2.00	0.1	%	<RDL	0.12	1.24
< p-2.00	0.2	%	<RDL	0.12	1.24

Locator:	BWT-BTHC-7A				
Date:	10/03/11	Depth:	32 m		
Sample #:	L54225-7	% Solids:	67.2		
Parameter	**Value**	**Units**	**Qual.**	**MDL**	**RDL**
TOC*	5860	mg/Kg		350	700
Fines	4.9	%		0.7	1.4
Clay	4.2	%		0.7	1.4
Silt		%	<MDL	0.7	1.4
Sand	88.0	%		0.14	1.4
Gravel	6.9	%		0.14	1.4
≥ p+10.0	3.5	%		0.7	1.4
p+9.00		%	<MDL	0.7	1.4
p+8.00		%	<MDL	0.7	1.4
p+7.00		%	<MDL	0.7	1.4
p+6.00		%	<MDL	0.7	1.4
p+5.00		%	<MDL	0.7	1.4
p+4.00	6.9	%		0.14	1.4
p+3.00	41.1	%		0.14	1.4
p+2.00	32.2	%		0.14	1.4
p+1.00	4.3	%		0.14	1.4
p+0.00	3.5	%		0.14	1.4
p-1.00	5.1	%		0.14	1.4
p-2.00	0.8	%	<RDL	0.14	1.4
< p-2.00	1	%	<RDL	0.14	1.4

Appendix E: 2006 Benthic Taxonomy Data

Table E-1 2006 benthic community index values by station and replicate.

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Benthic Index	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Total Abundance	516	628	554	942	738	796	595	603	1045	790	705	1128	1072	1085	345	625	753	544	861	455	710
Annelid Abundance	45	41	49	153	131	114	37	43	164	147	125	307	439	386	65	138	134	110	367	105	201
Crustacean Abundance	247	286	208	492	308	319	300	264	513	284	295	435	222	245	154	249	232	176	219	129	195
Misc Abundance	3	12	5	9	8	11	4	2	14	10	3	34	52	48	2	18	11	9	14	11	33
Mollusc Abundance	221	289	292	288	291	352	254	294	354	349	282	352	359	406	124	220	376	249	261	210	281
Total Richness	56	65	62	81	70	72	55	55	91	77	66	90	140	127	54	75	73	83	121	79	95
Annelid Richness	17	18	22	27	25	24	18	21	30	27	28	35	67	53	24	34	30	36	56	35	46
Crustacean Richness	20	19	18	31	22	24	16	12	32	19	21	21	33	35	17	18	20	23	31	20	20
Mollusc Richness	16	20	18	17	19	18	18	20	21	23	15	25	24	25	11	17	17	17	27	18	19
Misc Richness	3	8	4	6	4	6	3	2	8	8	2	9	16	14	2	6	6	7	7	6	10
Total Biomass	4.32	5.42	5.85	4.29	5.00	8.90	4.36	3.83	10.33	6.58	5.08	9.15	9.36	9.67	2.45	5.35	5.66	3.47	8.15	2.69	6.20
Annelid Biomass	0.39	0.35	1.39	1.01	0.53	3.23	0.37	0.15	2.78	1.57	1.08	2.20	2.85	2.87	0.46	1.63	1.35	0.63	3.61	0.59	1.58
Crustacean Biomass	0.85	0.53	0.31	1.02	1.25	0.54	0.75	0.63	3.24	0.41	0.63	1.19	1.20	1.30	0.83	0.40	0.34	0.73	1.04	0.27	1.48
Mollusc Biomass	3.07	4.46	4.14	2.25	3.21	4.88	3.11	2.90	4.30	4.43	3.21	4.68	4.26	3.98	1.13	2.36	3.58	1.68	3.05	1.82	2.32
Misc Biomass	0.01	0.08	0.01	0.01	0.01	0.25	0.13	0.15	0.01	0.17	0.16	1.08	1.05	1.52	0.03	0.96	0.39	0.43	0.45	0.01	0.82
Shannon's Diveristy	2.19	2.30	2.27	2.85	2.79	2.67	2.21	2.15	3.11	2.54	2.64	2.87	4.05	3.67	2.83	2.94	2.74	2.92	3.75	3.02	3.31
Pielou's Evenness	0.54	0.55	0.55	0.65	0.66	0.62	0.55	0.54	0.69	0.58	0.63	0.64	0.82	0.76	0.71	0.68	0.64	0.66	0.78	0.69	0.73
Sw artz's Dominance	4	5	5	8	9	9	5	4	13	7	9	9	34	22	11	11	8	10	25	12	17

Table E-2 2006 abundance of benthic species by station and replicate. *P = present*

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Abietinaria sp	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
Accedomoera vagor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acila castrensis	-	-	-	-	-	-	-	1	-	1	-	1	-	1	-	-	2	-	1	-	-
Acteocina sp	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
Adontorhina cyclia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alvania compacta	-	-	-	21	52	26	3	3	9	12	17	46	136	139	8	11	88	6	98	30	105
Alvania rosana	-	-	-	-	-	-	-	-	-	-	-	1	6	4	1	-	-	-	-	-	2
Americhelidium rectipalmum	-	1	-	2	-	-	-	-	2	1	-	-	3	2	-	-	2	-	-	-	1
Americhelidium shoemakeri	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Americhelidium sp cmplx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Americhelidium variabilum	-	-	-	-	1	2	-	-	4	-	-	1	-	2	-	-	-	-	-	-	1
Ampelisca agassizi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca careyi	-	-	-	1	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	1	-
Ampelisca cristata	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca hancocki	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca lobata	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	1	-	-
Ampharete acutifrons	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	-	-	-	-	-	-
Ampharete cf *crassiseta*	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	8	2	2
Ampharete sp Juvenile	-	-	-	1	-	-	-	-	3	2	-	-	2	2	-	2	-	-	3	-	4
Amphilochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	1	-	-
Amphiporus sp	1	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	4
Amphissa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitrite cirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitritinae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampithoe sp	-	-	-	2	-	-	-	-	3	-	-	-	-	1	-	-	-	-	-	-	-
Anobothrus gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Anoplodactylus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aoroides sp	2	2	5	10	-	-	8	-	36	2	7	4	-	1	-	-	2	1	-	2	-
Aphelochaeta sp	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	3	-	-
Apolochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argissa hamatipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea (Acmira) lopezi	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-	-	-	2	-	-
Aricidea (Allia) ramosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea catherinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea pseudoarticulata	-	3	-	2	7	2	-	1	13	-	2	2	-	-	-	-	1	2	-	1	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Aricidea wassi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Armandia brevis	-	-	-	-	2	-	-	-	-	-	1	3	2	1	-	3	1	1	2	-	-
Asabellides lineata	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	2
Asteroidea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Astyris gausapata	1	2	-	-	-	-	1	1	-	1	2	-	4	2	-	4	-	-	1	2	-
Atylus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axinopsida serricata	2	6	6	5	8	11	9	7	4	7	7	6	1	6	1	5	11	11	5	5	3
Balanidae	2	5	1	1	-	-	18	-	22	1	1	3	4	24	5	4	-	4	11	-	12
Balcis thersites	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Barantolla sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia benedeni	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Barentsia discreta	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Barentsia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Bathymedon pumilus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Betapista dekkerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Bipalponephtys cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bispira elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boccardia pugettensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boltenia sp	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	1	-	2
Bowerbankia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Brachyura	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bruzelia tuberculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buskia nitens	-	P	P	-	P	P	P	P	-	P	P	P	P	P	P	P	P	P	P	P	P
Byblis millsi	-	-	-	-	-	-	-	-	1	1	3	-	10	2	-	2	1	3	8	2	1
Calcarea	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Calliopiidae	-	-	-	-	-	-	-	-	-	-	1	-	2	1	5	3	4	1	-	-	-
Calocarides spinulicauda	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campylaspis hartae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Campylaspis rubromaculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Cancer gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer oregonensis	-	-	-	-	1	-	-	-	2	1	-	2	-	1	-	-	-	-	1	-	-
Cancer productus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Cancer sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Candidae	-	P	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitella capitata cmplx	-	-	1	-	-	1	-	-	-	-	-	-	1	2	-	-	-	-	3	-	1
Caprella kennerlyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Caprella mendax	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caprellidae Juvenile	-	-	-	4	1	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-
Cardiomya pectinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Caulleriella pacifica	-	-	-	2	8	10	-	-	5	6	3	7	26	23	1	9	-	2	14	3	7
Celleporella hyalina	-	-	-	-	P	-	P	-	-	P	-	-	P	P	P	-	P	P	P	-	-
Celleporina robertsoniae	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	P	P	-	-	-
Ceriantharia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetoderma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetozone sp	4	-	1	3	4	4	-	1	1	5	10	2	8	8	3	7	5	3	21	9	5
Chaperiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
Cheilopora praelonga	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Cheirimedeia macrodactyla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheirimedeia sp	2	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Chelyosoma columbianum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chiridota sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chitinopoma serrula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chone duneri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chone magna	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Circeis spirillum	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	1	-	-
Cirratulus sp	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	1	-	-	4	-	1
Clinocardium nuttallii	2	2	5	7	2	1	2	7	-	-	-	1	-	1	-	1	-	-	1	1	-
Clinocardium sp Juvenile	2	1	-	-	-	-	1	-	6	1	-	1	-	-	-	-	1	-	-	-	-
Clytia sp	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Coboldus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Compsomyax subdiaphana	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Cossura pygodactylata	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangon alaskensis	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangon sp	1	1	1	1	1	2	3	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Crangonidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Crassicorophium crassicorne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-
Crepipatella dorsata	-	-	-	-	-	-	-	-	-	-	-	5	17	1	-	2	2	1	3	-	3
Cryptonatica affinis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclocardia ventricosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclopoida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclostomata	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	P	-	P
Cyclostremella concordia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cylichna alba	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	2
Cylichna attonsa	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Cylindroleberididae	2	2	1	8	5	4	6	5	3	3	8	-	-	-	5	3	-	3	1	1	-
Demonax sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Dendrobeania sp	-	-	-	-	-	-	-	P	-	-	-	-	P	P	-	-	-	-	P	-	P
Desdimelita desdichada	-	-	-	-	7	-	-	-	12	2	1	25	6	6	-	-	-	7	15	1	2
Diaperoecia claviformis	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
Diastylis pellucida	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Diastylis santamariensis	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diopatra ornata	-	-	-	1	1	1	2	-	1	3	1	2	2	2	1	2	4	-	7	1	2
Dipolydora brachycephala	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Dipolydora cardalia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Dipolydora socialis	-	-	-	-	-	-	-	-	-	-	-	4	1	1	-	1	-	1	2	2	3
Dorvillea (Schistomeringos) longicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dorvilleidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilonereis longa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dulichia sp	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Dyopedos sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinoidea	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Edwardsia sipunculoides	-	1	1	-	1	-	1	-	2	-	-	-	-	-	-	-	1	1	-	1	-
Elassochirus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Ennucula tenuis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Eobrolgus chumashi	-	-	-	-	-	-	-	-	5	-	-	-	1	-	-	-	2	1	-	-	-
Eobrolgus spinosus	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eohaustorius washingtonianus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epigamia alexandri	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-
Epitonium sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ericthonius cf *brasiliensis*	-	-	-	3	1	-	-	-	2	-	3	-	21	6	-	1	2	-	-	-	-
Eteone sp	1	-	-	-	-	2	-	-	-	-	-	1	1	5	-	-	2	-	-	-	-
Eualus sp	-	-	-	2	1	2	-	-	41	-	-	-	10	11	-	-	1	2	20	1	1
Eualus subtilis	-	-	-	5	-	-	-	-	7	-	-	1	2	4	-	-	-	2	11	-	-
Euclymeninae	5	-	6	3	3	5	-	4	8	2	6	1	13	20	3	5	2	1	6	3	4
Eudistylia sp	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-
Eudorella pacifica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia californiensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia quadrioculata	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Eulalia sp N1	-	-	-	-	-	-	-	-	-	1	-	8	10	5	-	1	-	1	7	-	3
Eumida longicornuta	1	2	1	7	6	6	1	4	3	9	11	17	25	47	5	5	8	14	23	1	15
Eunoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Eupentacta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euphilomedes carcharodonta	187	198	146	181	216	237	223	219	210	223	205	272	55	92	79	156	157	84	82	81	135
Euphysa ruthae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euphysa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eupolymnia heterobranchia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira lewisii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira pallida	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Eusyllis blomstrandi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis habei	-	-	-	-	-	-	-	-	-	-	-	1	20	17	-	-	-	1	5	2	9
Eusyllis lamelligera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exogone dwisula	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	2
Exogone lourei	-	-	-	-	-	-	-	-	-	1	-	-	7	-	-	2	-	1	2	3	3
Eyakia robusta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fabia subquadrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flabelligera affinis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Foxiphalus sp	2	-	-	-	-	-	-	-	2	-	-	-	2	4	1	-	-	-	1	-	1
Galathowenia oculata	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Gammaropsis ellisi	-	-	-	-	-	-	-	-	-	-	-	-	2	7	1	-	-	-	-	-	-
Gammaropsis sp Juvenile	-	-	-	6	1	1	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-
Gammaropsis thompsoni	1	-	-	164	15	3	-	-	55	1	-	53	9	13	2	7	6	10	3	4	1
Gastropteron pacificum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gattyana cirrhosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gattyana treadwelli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glycera sp	1	2	2	4	3	2	1	2	4	1	1	1	1	4	-	1	2	3	4	3	-
Glycinde armigera	2	3	-	4	8	1	-	4	1	2	5	4	-	9	4	-	-	3	5	6	-
Glycinde picta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glycinde Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	2	1	1	1	8
Golfingiidae	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	1	-
Goniada brunnea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goniada maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Halcampa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haliophasma geminatum	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-
Haminoea vesicula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe extenuata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe imbricata	-	-	-	-	-	-	-	-	-	-	-	-	5	2	-	-	-	-	1	-	-
Harmothoe multisetosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harpacticoida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hemipodia simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Heptacarpus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Heptacarpus stimpsoni	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Hermundura fauveli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hesionidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heteromysis odontops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Heterophoxus conlanae	-	-	-	-	-	-	-	-	-	-	-	-	3	4	-	1	-	-	1	-	5
Heterophoxus ellisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heterophoxus sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hiatella arctica	-	-	-	-	-	1	-	-	2	-	-	1	8	-	-	-	-	-	1	1	3
Hima mendica	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Hippolytidae	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Hippomedon sp	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Hirudinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoplonemertea	-	1	-	-	-	2	-	1	-	-	-	2	4	5	-	2	1	-	-	-	-
Humilaria kennerleyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydractinia sp	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Idanthyrsus saxicavus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-
Idoteidae	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ischnochitonidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kellia suborbicularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kroyera carinata	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Kurtzia arteaga	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lacuna vincta	-	-	2	6	1	-	-	-	5	2	-	1	-	3	-	1	-	1	3	1	-
Lanassa venusta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laonice sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Laonome kroeyeri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laqueidae	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Leitoscoloplos pugettensis	-	-	-	-	-	2	1	-	-	-	-	-	1	1	-	3	-	-	-	-	-
Lepidasthenia longicirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidepecreum gurjanovae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidonotus spiculus	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
Leptochelia savignyi	6	13	9	9	23	20	4	6	16	15	13	22	28	15	8	26	14	14	9	4	7
Leptosynapta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leucilla nuttingi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leukoma staminea	1	1	1	-	-	-	1	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Levinsenia sp	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lineidae	1	1	-	2	1	-	1	-	3	-	-	5	4	2	-	1	-	1	1	1	5
Lirobittium eschrichtii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lirobittium munitum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Lirularia lirulata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lophopanopeus bellus	-	-	-	-	-	-	-	-	-	-	-	-	4	4	-	-	-	-	1	-	1
Lottia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lucinoma annulatum	2	3	1	1	1	1	2	3	6	6	4	1	-	-	-	5	3	-	-	-	1
Lumbrineridae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lumbrineris californiensis	-	-	-	-	1	-	-	-	-	-	-	1	9	8	1	-	-	-	4	-	1
Lumbrineris latreilli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lyonsia californica	2	1	4	5	3	8	3	3	3	4	1	8	5	6	-	-	2	-	7	2	-
Lysippe labiata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma carlottensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Macoma golikovi	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	2
Macoma nasuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma sp Juvenile	-	-	-	-	-	-	1	2	-	1	-	-	9	1	-	3	-	1	7	1	5
Macoma yoldiformis	5	5	1	6	12	11	11	11	16	9	7	10	15	18	12	13	17	22	21	8	24
Mactridae	1	2	1	-	1	3	-	-	2	2	-	-	-	-	1	-	-	-	-	-	-
Magelona longicornis	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-	-	1	1	-	-
Magelona sacculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magelona sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maldanidae Juvenile	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Malmgreniella bansei	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2
Malmgreniella macginitiei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella nigralba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Margarites pupillus	-	-	-	-	-	-	-	-	-	-	-	1	10	7	-	-	-	1	8	-	-
Mediomastus californiensis	8	3	6	9	18	17	8	3	26	34	15	23	26	63	3	5	23	6	65	10	7
Megalomma splendida	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	1	6	-	-
Megamoera subtener	-	-	-	1	-	-	-	-	-	-	-	3	-	1	-	-	-	-	-	-	-
Megasurcula carpenteriana	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-	-
Melanochlamys diomedea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melinna oculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melitidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Melphidippa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melphisana bola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Membranipora membranacea	-	-	-	P	P	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Mesochaetopterus taylori	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mesocrangon munitella	-	-	-	-	-	1	-	-	9	-	-	-	4	5	1	-	-	1	1	-	-
Metacaprella kennerlyi	-	-	-	2	-	-	-	-	1	-	-	-	1	-	-	-	-	-	1	-	-
Metaphoxus frequens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Microphthalmus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Micropodarke dubia	-	-	2	-	6	3	-	-	1	-	1	5	6	5	1	3	-	-	1	1	2
Modiolus sp	-	-	1	-	-	-	-	-	-	-	-	2	4	3	-	2	-	-	1	1	-
Molgula sp	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	1
Monocorophium sp	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Monticellina serratiseta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monticellina sp N1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Munnogonium tillerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus discors	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Musculus glacialis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus niger	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Musculus sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Mya arenaria	-	1	-	-	-	-	-	-	1	1	-	1	-	-	-	-	3	-	-	-	-
Mya sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Myosoma spinosa	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Mytilus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Myxicola infundibulum	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	3	1	3
Neaeromya rugifera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebalia sp	-	-	-	-	-	2	-	-	-	2	-	-	-	-	-	1	-	1	-	1	1
Nematoda	-	1	1	2	5	4	-	-	2	2	2	7	4	4	1	9	6	2	3	2	2
Nemertea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemocardium centifilosum	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Neosabellaria cementarium	-	-	-	1	-	-	-	-	1	-	-	8	32	-	1	1	-	3	42	-	6
Neotrypaea sp	-	1	1	-	1	1	2	1	-	1	-	2	-	1	-	-	-	-	1	1	-
Nephasoma minutum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nephtys sp	-	-	2	-	-	2	-	-	1	2	1	1	3	2	-	3	2	1	3	1	1
Nereididae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nereis sp	-	1	2	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Nicolea zostericola	-	-	-	-	-	-	-	-	-	-	-	3	13	5	-	1	-	1	5	-	4
Nicomache lumbricalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nicomache personata	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	5
Notomastus hemipodus	1	-	1	-	4	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Notomastus latericeus	1	2	2	3	2	-	3	1	4	-	1	-	2	-	-	-	-	-	-	-	-
Notomastus lineatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nucella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nudibranchia	-	-	-	-	-	1	-	-	1	1	-	4	5	2	-	-	-	1	1	-	1
Nutricola lordi	3	4	5	7	2	8	6	4	4	7	4	1	-	1	-	2	2	-	1	2	-
Nutricola tantilla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nymphon pixellae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nynantheae	-	-	-	1	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Odontosyllis phosphorea	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Odostomia sp	-	-	-	-	-	-	-	-	-	-	1	-	19	1	1	-	-	1	1	1	-
Oerstedia dorsalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oligochaeta	-	1	-	1	-	-	2	-	9	2	2	9	2	-	-	1	-	-	-	-	-
Olivella (Callianax) baetica	1	1	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1	-
Onuphidae Juvenile	4	5	2	3	2	8	2	7	6	17	14	8	14	10	7	11	12	2	20	9	5
Onuphis elegans	-	2	2	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Onuphis iridescens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Opercularella lacerata	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-
Ophelia limacina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelina acuminata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophiodermella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophiodromus pugettensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Ophiurida	-	-	-	-	-	-	-	-	1	2	-	1	11	16	1	1	1	-	1	-	9
Opisa tridentata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Orchomene decipiens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Orchomene pacificus	-	-	-	2	2	2	1	2	-	2	4	-	-	-	1	-	2	-	-	-	-
Orchomene pinguis	5	14	7	2	-	2	3	2	3	-	1	-	-	-	-	-	-	-	-	-	-
Oregonia gracilis	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	-	1	-	-
Owenia sp	-	-	1	-	-	-	-	2	-	-	-	1	2	2	-	-	-	-	1	-	1
Pachynus barnardi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacifoculodes sp	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pagurus sp	1	-	-	-	-	1	-	2	2	-	1	-	3	-	2	1	3	3	2	1	2
Paleanotus bellis	-	2	-	-	-	-	-	-	-	1	2	-	2	2	1	-	1	1	2	-	5
Paleonemertea	-	1	-	1	-	1	2	1	3	1	-	1	2	1	-	-	-	1	1	1	1
Pandalus sp	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Pandora bilirata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pandora filosa	-	1	-	1	1	-	1	-	-	1	2	-	1	-	-	1	-	-	1	1	3
Panopea abrupta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Paradialychone bimaculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paradulichia typica	-	-	-	7	-	-	-	-	-	-	-	-	3	-	-	-	1	-	-	-	-
Parametaphoxus quaylei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paranaitis polynoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parandalia fauveli	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	1	-	-	-
Parapleustinae	-	1	1	1	1	1	-	-	1	1	1	1	4	6	3	1	1	2	2	-	3
Paraprionospio alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pardalisca tenuipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Parvilucina tenuisculpta	168	219	226	177	148	208	182	198	241	248	191	210	57	136	80	127	201	172	77	124	88
Pectinaria granulata	2	2	1	2	9	5	1	2	2	2	4	10	7	6	3	2	5	2	7	3	4

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Pectinidae	-	-	-	1	1	-	-	-	-	1	-	1	17	2	-	-	1	2	2	-	2
Pentamera sp	-	4	1	1	-	-	-	-	-	-	-	-	2	1	-	-	-	-	1	-	7
Petaloproctus tenuis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Pherusa plumosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pholoe minuta	-	-	2	1	-	-	-	-	-	-	-	-	3	1	1	2	1	-	1	-	-
Pholoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pholoides asperus	-	-	-	-	-	-	-	-	-	-	-	-	32	30	1	-	1	3	12	5	34
Phoronida	1	-	2	-	-	-	-	-	1	1	-	-	5	3	-	-	1	-	6	5	-
Photis sp	1	3	10	19	4	3	-	-	9	6	7	9	2	2	2	3	1	1	-	-	-
Phyllochaetopterus prolifica	-	-	-	-	-	-	-	-	-	1	-	-	4	1	-	1	-	-	1	1	1
Phyllodoce cuspidata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce groenlandica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce hartmanae	-	-	-	-	-	-	-	1	-	-	2	-	1	-	-	1	-	1	-	-	1
Phyllodoce longipes	-	-	-	2	3	4	1	-	4	-	-	3	-	3	1	-	1	2	1	-	1
Phyllodoce maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Phyllodoce williamsi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodocidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Phylo felix	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pilargis maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinnixa sp	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Pinnotheridae Juvenile	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pionosyllis uraga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piscicolidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pista elongata	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Pista estevanica	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-
Pista sp Juvenile	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	1	-
Platynereis bicanaliculata	9	7	10	89	29	24	1	1	43	34	23	166	77	38	12	49	38	25	15	3	20
Pleurogonium rubicundum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Pleusirus secorrus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleusymtes sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Podarkeopsis glabrus	-	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-	1
Podocerus cristatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Podocopida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pododesmus macrochisma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polycirrus sp cmplx	1	2	1	-	3	1	4	2	7	5	4	1	6	9	4	2	2	-	17	3	4
Polycladida	-	-	-	2	1	1	-	-	1	1	-	13	4	7	-	3	1	2	-	-	-
Polydora cornuta	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	1	-	-	-
Polygireulima rutila	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Polynoidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynoidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1
Pontogeneia intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontogeneia rostrata	-	-	-	12	-	-	-	-	21	-	-	-	-	-	-	1	-	-	-	1	-
Porcellanidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Priapulidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prionospio lighti	-	1	-	-	-	-	-	-	-	-	1	-	-	4	-	-	-	-	1	-	-
Prionospio multibranchiata	-	-	-	-	-	-	-	-	-	-	-	3	9	4	-	1	1	-	4	1	1
Prionospio steenstrupi	-	-	-	4	4	4	-	1	1	6	6	1	10	17	6	4	6	16	11	16	11
Proceraea sp	-	-	-	1	1	3	-	1	1	3	3	2	-	-	1	-	2	1	-	-	-
Protodorvillea gracilis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Protomedeia grandimana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protomedeia prudens	3	8	5	6	5	4	6	2	3	3	1	1	-	1	3	4	4	-	5	3	1
Pseudochitinopoma occidentalis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Ptilosarcus gurneyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pugettia gracilis	-	-	-	2	-	-	-	-	1	-	-	-	2	2	-	-	-	-	2	-	-
Puncturella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pygospio elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Retusa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhabdocoela	-	-	-	-	-	-	-	-	-	-	-	2	3	1	-	-	-	-	-	-	-
Rhachotropis sp	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Rhepoxynius abronius	23	27	13	32	17	21	19	22	29	17	31	26	9	9	34	33	23	30	27	18	15
Rhepoxynius daboius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rochefortia tumida	18	25	22	34	38	41	18	25	35	30	26	27	32	62	12	31	32	23	14	26	28
Rutiderma lomae	-	-	-	1	-	-	-	-	-	-	2	-	5	2	-	-	1	-	2	1	2
Saxidomus gigantea	-	-	1	1	1	1	-	2	-	-	-	-	1	1	1	-	-	-	-	-	-
Scalibregma californicum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Schistocomus hiltoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Scionella japonica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scoletoma luti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scoloplos sp	-	-	1	3	2	4	1	-	4	1	-	-	1	1	-	1	1	1	1	2	-
Scoloura phillipsi	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Serpula vermicularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sertularella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Sigalion spinosus	1	-	-	1	-	-	-	-	3	-	1	-	-	-	-	-	-	-	1	-	-
Sige montereyensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sipuncula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Smittina landsborovii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solamen columbianum	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	2	1
Solariella peramabilis	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Solariella sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solasteridae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solen sicarius	4	3	3	3	3	4	4	5	4	2	2	2	-	-	-	-	-	-	1	-	-
Sphaerodoropsis minuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerodoropsis sphaerulifer	-	-	-	1	-	-	-	1	-	-	1	-	2	1	-	-	4	2	2	3	-
Sphaerosyllis sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spio filicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spio limicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spiochaetopterus pottsi	-	1	1	2	-	-	2	2	4	1	2	-	3	2	1	-	1	1	2	-	3
Spiophanes berkeleyorum	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Spiophanes bombyx	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Spiophanes norrisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spirontocaris sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Stegopoma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
Stenothoidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sthenelais berkeleyi	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	2	-	-	1	-	-
Sthenelais fusca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sthenelais sp Juvenile	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Streblosoma bairdi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styelidae	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	1
Suberites sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllis gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellina modesta	4	5	5	10	13	13	6	15	7	8	14	14	-	-	3	8	5	3	-	-	1
Tellina nuculoides	-	1	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-	-
Tenonia priops	2	1	-	-	3	2	2	-	3	2	-	1	2	3	2	3	2	2	2	1	-
Terebella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terebellidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	1	-	-	-	1	1
Tetrastemma sp	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-
Tharyx parvus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thelepus setosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Themiste pyroides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Themisto pacifica	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorlaksonius sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thracia trapezoides	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-2			BWT-BTHC-3			BWT-BTHC-4			BWT-BTHC-5			BWT-BTHC-6			BWT-BTHC-7		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Thyasira flexuosa	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thysanocardia nigra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Tiron biocellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichotropis cancellata	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Tritella pilimana	-	-	-	1	-	-	-	-	-	-	-	1	3	1	-	-	-	-	-	-	-
Tubularia sp	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-
Tubulariidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbonilla sp	5	5	6	2	2	12	2	2	3	2	1	5	3	-	4	3	4	1	1	1	6
Turtonia minuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typosyllis caeca	-	-	1	-	-	-	-	-	-	2	-	-	2	1	-	-	-	-	4	2	-
Typosyllis cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Typosyllis sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Valvatida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Velutina velutina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westwoodilla caecula	3	4	3	2	-	4	3	-	6	1	2	4	12	7	1	-	4	2	4	1	2
Westwoodilla tone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylophaga washingtona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Yoldia seminuda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zygonemertes sp	-	-	-	-	-	2	-	-	-	-	-	2	1	-	-	-	-	1	-	-	1

This page intentionally left blank.

Appendix F: 2007 Benthic Taxonomy Data

Table F-1 2007 benthic community index values by station and replicate.

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Benthic Index	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Total Abundance	1287	1356	1593	1156	1190	2505	1800	1399	1487	1612	2342	1555	1627	3354	1336	1421	1875	1543	733	815	1115
Annelid Abundance	87	134	128	97	84	150	127	106	118	124	186	117	304	231	176	206	208	196	114	133	197
Crustacean Abundance	544	489	671	505	601	774	550	556	652	487	378	408	277	325	218	305	229	378	196	206	201
Misc Abundance	634	717	763	535	494	1553	1107	718	684	980	1760	1012	1007	2767	926	883	1397	938	404	455	686
Mollusc Abundance	22	16	31	19	11	28	16	19	33	21	18	18	39	31	16	27	41	31	19	21	31
Total Richness	78	84	98	78	74	103	89	86	81	78	95	88	126	118	95	102	110	117	93	96	107
Annelid Richness	27	35	32	25	25	37	27	28	27	31	36	32	58	50	43	38	38	45	33	36	49
Crustacean Richness	23	20	28	21	23	28	26	27	18	17	24	20	27	30	15	25	28	28	23	23	20
Mollusc Richness	20	22	29	23	20	30	27	23	26	21	26	28	28	28	28	27	28	33	25	29	29
Misc Richness	8	7	9	9	6	8	9	8	10	9	9	8	13	10	9	12	16	11	12	8	9
Total Biomass	7.74	8.73	7.37	6.82	6.98	10.87	9.81	7.22	6.87	9.11	14.91	9.52	10.50	9.81	10.72	7.26	11.44	8.87	5.81	5.48	6.78
Annelid Biomass	1.33	1.28	1.84	0.65	1.14	2.01	1.80	1.66	0.89	2.78	4.06	1.42	3.51	2.46	2.96	1.91	4.01	2.17	2.09	1.62	2.89
Crustacean Biomass	1.31	1.13	1.80	1.17	1.76	1.80	2.04	1.28	1.49	0.95	1.03	3.30	0.97	1.14	0.39	1.25	1.15	1.03	0.50	0.43	0.34
Mollusc Biomass	4.89	6.28	3.40	4.78	3.99	7.01	5.87	4.22	4.30	5.17	9.74	4.76	5.54	6.06	7.30	4.01	6.04	5.59	3.14	3.36	3.41
Misc Biomass	0.21	0.04	0.33	0.22	0.09	0.05	0.10	0.06	0.19	0.21	0.08	0.04	0.48	0.15	0.07	0.09	0.24	0.08	0.08	0.07	0.14
Shannon's Diveristy	2.32	2.65	2.79	2.30	2.11	2.27	2.32	2.38	2.37	2.31	2.02	2.40	2.92	1.64	2.52	2.71	2.20	2.88	3.07	3.05	2.86
Pielou's Evenness	0.53	0.60	0.61	0.53	0.49	0.49	0.52	0.53	0.54	0.53	0.44	0.54	0.60	0.34	0.55	0.58	0.47	0.60	0.68	0.67	0.61
Sw artz's Dominance	5	7	8	5	4	3	3	4	5	4	3	4	11	2	6	7	5	10	12	12	11

Table F-2 2007 abundance of benthic species by station and replicate. *P = present*

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Abietinaria sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accedomoera vagor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acila castrensis	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Acteocina sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Adontorhina cyclia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alvania compacta	7	222	120	27	25	814	554	255	132	479	1156	502	539	2358	409	444	1063	437	106	82	369
Alvania rosana	1	-	-	-	-	-	-	-	-	-	-	1	1	3	4	2	1	-	-	-	2
Americhelidium rectipalmum	-	-	1	-	1	1	1	1	-	-	-	-	1	3	1	1	1	1	-	-	-
Americhelidium shoemakeri	3	4	7	1	-	2	1	1	5	2	-	-	1	1	-	1	1	2	1	-	1
Americhelidium sp cmplx	-	-	-	-	-	-	-	5	1	-	-	-	1	-	-	-	-	-	-	-	-
Americhelidium variabilum	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca agassizi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Ampelisca careyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Ampelisca cristata	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca hancocki	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Ampelisca lobata	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-
Ampharete acutifrons	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	1	-	-	1
Ampharete cf *crassiseta*	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Ampharete sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Amphilochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphiporus sp	-	-	1	-	-	-	1	-	-	-	1	-	-	3	2	1	1	1	-	-	-
Amphissa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitrite cirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitritinae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampithoe sp	-	-	2	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Anobothrus gracilis	-	-	-	-	-	-	-	-	-	-	-	1	-	2	1	-	-	1	-	-	-
Anoplodactylus sp	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Aoroides sp	27	26	49	-	11	15	42	19	-	4	8	7	3	3	-	7	-	5	2	3	3
Aphelochaeta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apolochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argissa hamatipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea (Acmira) lopezi	-	-	-	1	1	-	-	1	3	1	1	-	-	1	-	-	-	-	2	1	1
Aricidea (Allia) ramosa	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	2	-	2	-
Aricidea catherinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea pseudoarticulata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea wassi	2	-	6	7	2	2	7	2	13	4	6	5	-	3	2	2	2	2	1	5	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Armandia brevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asabellides lineata	-	-	-	-	-	-	-	-	-	-	-	-	4	2	-	-	-	-	-	-	-
Asteroidea	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Astyris gausapata	-	1	1	3	-	3	4	8	4	6	3	8	1	7	6	1	2	6	3	2	2
Atylus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axinopsida serricata	6	3	4	11	2	10	4	4	5	5	7	5	4	10	9	7	5	6	7	10	5
Balanidae	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-
Balcis thersites	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barantolla sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia benedeni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia discreta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bathymedon pumilus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Betapista dekkerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bipalponephtys cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bispira elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boccardia pugettensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Boltenia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowerbankia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brachyura	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bruzelia tuberculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buskia nitens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Byblis millsi	-	1	1	-	1	3	-	1	2	5	4	1	1	20	3	15	4	11	13	8	5
Calcarea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calliopiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calocarides spinulicauda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campylaspis hartae	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	3	1	1
Campylaspis rubromaculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer oregonensis	-	2	2	-	-	1	-	-	-	-	1	-	1	1	-	-	-	1	1	-	-
Cancer productus	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Cancer sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Candidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitella capitata cmplx	2	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Caprella kennerlyi	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Caprella mendax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caprellidae Juvenile	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cardiomya pectinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Caulleriella pacifica	2	4	8	6	3	6	2	4	-	2	23	5	14	7	7	9	8	10	-	3	3

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Celleporella hyalina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Celleporina robertsoniae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceriantharia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Chaetoderma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetozone sp	2	-	-	2	3	2	3	5	12	2	1	2	1	5	5	7	2	2	3	2	2
Chaperiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheilopora praelonga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheirimedeia macrodactyla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheirimedeia sp	-	-	-	1	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
Chelyosoma columbianum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chiridota sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chitinopoma serrula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chone duneri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chone magna	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Circeis spirillum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cirratulus sp	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2
Clinocardium nuttallii	11	9	17	18	18	22	13	23	29	8	6	7	1	1	1	1	2	3	1	3	-
Clinocardium sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Clytia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coboldus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compsomyax subdiaphana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cossura pygodactylata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangon alaskensis	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangon sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangonidae	-	-	-	1	-	-	-	1	-	-	-	1	-	1	-	1	-	1	-	-	-
Crassicorophium crassicorne	1	-	-	-	2	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Crepipatella dorsata	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Cryptonatica affinis	-	1	2	-	1	-	-	-	-	-	1	-	2	-	1	-	3	2	-	2	-
Cyclocardia ventricosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclopoida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclostomata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclostremella concordia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Cylichna alba	-	-	-	2	1	2	1	-	2	1	1	1	1	1	-	1	3	1	-	-	-
Cylichna attonsa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	3
Cylindroleberididae	-	-	-	4	2	1	-	2	5	3	8	2	-	1	1	1	1	3	3	3	1
Demonax sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dendrobeania sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Desdimelita desdichada	-	1	4	-	1	-	-	2	-	-	3	5	7	6	3	1	1	15	3	2	1

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Diaperoecia claviformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diastylis pellucida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diastylis santamariensis	-	-	2	-	5	4	5	2	-	-	-	-	1	1	1	-	-	-	2	-	2
Diopatra ornata	2	4	4	2	5	9	10	4	1	5	13	7	10	15	12	9	16	13	6	11	6
Dipolydora brachycephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dipolydora cardalia	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dipolydora socialis	-	-	-	-	-	-	-	-	-	-	1	-	2	2	-	4	-	4	-	-	1
Dorvillea (Schistomeringos) longicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Dorvilleidae Juvenile	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilonereis longa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dulichia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dyopedos sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Echinoidea	-	-	-	-	2	-	1	-	1	-	-	-	1	-	-	-	-	-	-	-	-
Edwardsia sipunculoides	1	-	-	1	1	2	-	2	2	-	2	1	4	1	1	2	1	2	2	1	3
Elassochirus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ennucula tenuis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Eobrolgus chumashi	2	4	2	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-
Eobrolgus spinosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eohaustorius washingtonianus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epigamia alexandri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epitonium sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ericthonius cf *brasiliensis*	1	6	-	-	-	5	3	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Eteone sp	-	-	2	-	-	-	-	-	-	-	1	1	2	2	2	3	1	-	1	-	3
Eualus sp	-	-	16	1	-	12	5	-	-	1	3	-	13	5	-	6	15	2	-	-	2
Eualus subtilis	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	13	-	-	-	-
Euclymeninae	6	7	3	3	10	9	7	3	6	5	4	3	5	1	3	6	4	6	2	4	9
Eudistylia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Eudorella pacifica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia californiensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia quadrioculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia sp N1	-	1	1	-	-	2	2	-	-	-	3	1	3	6	1	2	5	3	1	1	4
Eumida longicornuta	1	-	4	-	1	4	-	-	1	2	1	-	11	5	1	6	3	7	2	-	4
Eunoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eupentacta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Euphilomedes carcharodonta	435	368	498	437	521	649	421	459	592	397	298	323	203	212	170	224	137	252	118	136	146
Euphysa ruthae	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euphysa sp	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Eupolymnia heterobranchia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira lewisii	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira pallida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis blomstrandi	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Eusyllis habei	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-	3
Eusyllis lamelligera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exogone dwisula	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Exogone lourei	-	-	-	-	1	-	-	-	-	-	-	-	3	1	1	1	1	4	-	-	4
Eyakia robusta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fabia subquadrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flabelligera affinis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Foxiphalus sp	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	1	1	-	-	-	-
Galathowenia oculata	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Gammaropsis ellisi	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Gammaropsis sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gammaropsis thompsoni	5	3	10	-	1	12	11	7	1	2	5	10	4	1	-	-	7	19	1	-	-
Gastropteron pacificum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gattyana cirrhosa	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	3
Gattyana treadwelli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glycera sp	2	2	1	-	3	2	2	-	1	3	3	3	3	1	2	1	2	-	-	2	1
Glycinde armigera	12	19	10	16	14	8	12	12	16	15	7	2	5	5	11	5	9	11	10	10	8
Glycinde picta	-	-	-	-	-	-	-	-	-	1	2	-	3	2	1	1	2	1	-	-	1
Glycinde Juvenile	2	1	5	-	-	5	2	9	3	4	6	14	8	11	15	12	11	5	1	11	5
Golfingiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goniada brunnea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goniada maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Halcampa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haliophasma geminatum	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-
Haminoea vesicula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe extenuata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe imbricata	-	-	1	-	-	3	1	-	-	-	1	-	4	2	1	2	3	1	2	-	1
Harmothoe multisetosa	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	-	-	-	2	1
Harpacticoida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hemipodia simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptacarpus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptacarpus stimpsoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hermundura fauveli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hesionidae Juvenile	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heteromysis odontops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Heterophoxus conlanae	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-	-	-	1
Heterophoxus ellisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heterophoxus sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hiatella arctica	2	12	9	1	-	4	1	-	-	2	2	2	9	12	2	1	3	4	3	-	8
Hima mendica	-	-	1	-	-	-	-	-	2	-	-	1	-	-	-	-	2	2	-	-	-
Hippolytidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hippomedon sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Hirudinea	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Hoplonemertea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Humilaria kennerleyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydractinia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idanthyrsus saxicavus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idoteidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ischnochitonidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kellia suborbicularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kroyera carinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kurtzia arteaga	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	1
Lacuna vincta	-	-	2	-	-	3	1	1	1	-	-	-	-	1	1	-	-	-	-	1	1
Lanassa venusta	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laonice sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laonome kroeyeri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laqueidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leitoscoloplos pugettensis	1	7	-	2	1	1	3	-	-	5	3	-	5	1	9	5	5	3	1	3	1
Lepidasthenia longicirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Lepidepecreum gurjanovae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidonotus spiculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptochelia savignyi	9	23	9	6	2	5	3	7	3	10	6	5	8	5	4	8	7	12	1	3	3
Leptosynapta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Leucilla nuttingi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leukoma staminea	2	-	3	3	2	3	7	1	3	-	1	1	-	-	-	-	-	1	1	2	-
Levinsenia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lineidae	3	3	6	1	1	4	3	4	-	3	3	-	4	3	3	2	4	2	1	1	2
Lirobittium eschrichtii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lirobittium munitum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lirularia lirulata	2	-	2	-	-	2	1	-	1	2	-	1	-	1	-	-	3	1	-	-	1
Lophopanopeus bellus	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Lottia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lucinoma annulatum	2	-	-	5	4	4	4	2	3	2	3	8	5	6	6	3	1	3	1	4	3

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Lumbrineridae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lumbrineris californiensis	-	-	1	2	-	1	-	-	-	-	2	-	12	3	1	6	10	4	1	-	3
Lumbrineris latreilli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lyonsia californica	2	4	1	5	5	16	10	12	25	7	8	14	11	12	6	5	8	18	6	7	7
Lysippe labiata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma carlottensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma golikovi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma nasuta	7	2	8	2	-	3	3	4	4	2	3	4	7	3	3	3	3	9	2	2	2
Macoma sp Juvenile	-	3	4	-	-	5	3	1	1	-	3	-	13	5	3	11	8	5	1	1	1
Macoma yoldiformis	1	1	-	2	2	-	-	-	2	-	2	2	13	6	6	7	3	4	4	3	9
Mactridae	11	6	9	6	4	15	2	6	13	1	1	1	2	-	1	-	-	2	1	1	1
Magelona longicornis	2	1	-	-	-	5	4	5	6	2	1	3	6	3	1	2	3	11	4	2	10
Magelona sacculata	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magelona sp Juvenile	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maldanidae Juvenile	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella bansei	-	-	-	1	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	1	2
Malmgreniella macginitiei	-	-	-	-	-	-	-	-	-	-	-	-	2	1	3	2	-	-	-	-	1
Malmgreniella nigralba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Margarites pupillus	-	-	-	-	-	2	1	1	-	-	4	-	14	9	1	6	29	6	2	5	2
Mediomastus californiensis	10	24	1	10	4	4	10	7	7	18	32	8	27	27	13	28	10	16	9	19	14
Megalomma splendida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Megamoera subtener	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Megasurcula carpenteriana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melanochlamys diomedea	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melinna oculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melitidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melphidippa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melphisana bola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Membranipora	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mesochaetopterus taylori	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mesocrangon munitella	1	1	19	-	2	10	9	-	-	5	-	-	4	5	2	2	6	5	1	6	-
Metacaprella kennerlyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metaphoxus frequens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microphthalmus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micropodarke dubia	1	2	2	-	-	1	4	1	-	2	4	1	5	1	-	2	1	-	-	-	1
Modiolus sp	-	-	-	-	-	2	1	1	-	-	-	-	3	8	2	4	7	2	2	2	2
Molgula sp	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Monocorophium sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Monticellina serratiseta	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Monticellina sp N1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Munnogonium tillerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus discors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus glacialis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus niger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mya arenaria	-	-	3	2	3	4	4	5	8	1	2	2	1	-	2	1	1	1	-	1	-
Mya sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Myosoma spinosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mytilus sp	-	1	4	-	1	3	2	-	1	-	-	2	-	4	-	-	-	1	-	-	1
Myxicola infundibulum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neaeromya rugifera	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Nebalia sp	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nematoda	-	5	6	1	-	5	-	2	2	3	2	5	1	4	-	3	2	4	1	2	3
Nemertea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Nemocardium centifilosum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neosabellaria cementarium	-	-	1	-	-	1	-	1	-	-	-	-	1	-	-	-	-	2	1	1	1
Neotrypaea sp	1	-	-	2	-	1	2	1	-	3	1	-	1	1	-	1	2	-	1	1	2
Nephasoma minutum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nephtys sp	3	4	7	3	7	5	5	4	6	2	6	7	16	11	4	6	10	11	10	3	9
Nereididae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nereis sp	3	2	2	6	3	7	4	1	3	1	4	1	2	-	1	-	-	3	1	-	-
Nicolea zostericola	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	2	-	-	1
Nicomache lumbricalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nicomache personata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Notomastus hemipodus	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Notomastus latericeus	2	3	-	5	1	3	-	4	4	-	1	1	4	-	2	1	2	2	3	-	2
Notomastus lineatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nucella sp	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nudibranchia	-	-	3	-	-	3	-	1	2	-	-	-	2	-	-	-	2	2	-	1	-
Nutricola lordi	55	53	57	30	24	37	35	33	61	37	27	53	16	19	13	19	15	15	31	33	13
Nutricola tantilla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nymphon pixellae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nynantheae	1	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1	-	-
Odontosyllis phosphorea	-	-	-	-	-	-	-	-	-	1	-	-	2	1	-	-	-	-	-	-	1
Odostomia sp	-	-	-	-	-	-	-	1	-	-	3	-	1	4	-	6	1	-	5	-	2
Oerstedia dorsalis	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oligochaeta	2	1	-	2	1	2	7	2	5	1	1	2	-	-	3	1	1	1	2	1	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Olivella (Callianax) baetica	-	-	-	2	4	1	2	-	-	2	1	1	-	1	-	-	-	1	-	-	-
Onuphidae Juvenile	-	1	1	1	-	5	-	2	1	2	-	2	-	3	-	-	4	1	-	1	-
Onuphis elegans	5	1	3	2	1	3	3	5	-	8	1	1	2	1	2	-	2	2	1	2	1
Onuphis iridescens	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-
Opercularella lacerata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelia limacina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelina acuminata	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Ophiodermella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophiodromus pugettensis	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-	1	-	-	-	-
Ophiurida	1	1	-	1	-	1	4	1	1	1	2	3	4	6	2	2	13	6	3	5	2
Opisa tridentata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-
Orchomene decipiens	-	-	-	-	-	-	-	-	-	-	2	1	2	-	3	-	5	6	3	-	-
Orchomene pacificus	4	3	1	7	5	4	1	5	2	12	5	9	1	2	4	2	-	2	4	1	3
Orchomene pinguis	17	9	4	1	2	2	-	-	2	-	-	1	-	2	-	-	-	-	-	6	-
Oregonia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-
Owenia sp	-	1	-	-	-	-	1	-	-	-	-	-	1	1	-	1	-	-	-	-	-
Pachynus barnardi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Pacifoculodes sp	-	-	1	1	-	-	-	2	1	-	2	2	3	-	-	-	2	1	1	-	-
Pagurus sp	-	-	1	-	1	3	2	-	-	1	3	4	1	1	-	3	3	1	3	1	-
Paleanotus bellis	-	4	3	-	-	3	-	-	-	1	1	1	1	2	-	1	-	2	1	1	1
Paleonemertea	13	3	6	7	4	11	2	2	19	3	5	5	4	2	2	5	1	8	4	4	5
Pandalus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pandora bilirata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pandora filosa	-	-	-	-	-	-	-	1	2	-	-	1	-	-	2	1	1	1	-	2	-
Panopea abrupta	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Paradialychone bimaculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paradulichia typica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parametaphoxus quaylei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paranaitis polynoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parandalia fauveli	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Parapleustinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paraprionospio alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pardalisca tenuipes	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parvilucina tenuisculpta	400	279	297	345	330	469	383	322	310	317	416	296	235	147	353	238	167	264	171	217	167
Pectinaria granulata	-	3	8	2	-	5	5	10	6	2	7	3	21	28	16	23	11	8	2	4	14
Pectinidae	-	-	-	-	-	1	-	-	-	-	2	1	3	7	1	1	2	1	1	1	3
Pentamera sp	-	-	-	-	1	1	-	1	-	1	1	1	9	-	1	2	3	3	1	-	2
Petaloproctus tenuis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pherusa plumosa	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Pholoe minuta	-	-	1	-	-	-	1	-	-	-	-	-	3	1	1	3	-	-	-	-	1
Pholoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pholoides asperus	-	1	3	-	1	-	-	1	-	1	1	-	13	13	-	6	13	5	6	1	10
Phoronida	1	-	-	1	2	-	-	-	2	-	-	1	1	2	-	2	1	1	1	-	3
Photis sp	4	5	8	1	1	5	5	1	2	-	1	-	1	-	-	-	-	-	-	-	-
Phyllochaetopterus prolifica	-	3	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	3	4
Phyllodoce cuspidata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Phyllodoce groenlandica	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Phyllodoce hartmanae	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Phyllodoce longipes	1	1	-	1	1	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-
Phyllodoce maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce sp Juvenile	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce williamsi	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodocidae Juvenile	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Phylo felix	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pilargis maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinnixa sp	1	-	1	-	-	-	1	-	-	-	1	2	3	5	3	2	4	1	1	-	1
Pinnotheridae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pionosyllis uraga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piscicolidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pista elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	3	-	-	-	-
Pista estevanica	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1	-
Pista sp Juvenile	-	-	-	1	-	-	1	1	1	1	-	1	-	-	-	-	-	-	-	-	-
Platynereis bicanaliculata	9	9	36	2	-	25	15	6	2	10	16	10	24	15	12	7	11	15	4	8	7
Pleurogonium rubicundum	1	-	-	-	-	1	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-
Pleusirus secorrus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleusymtes sp	2	4	3	6	1	1	4	5	1	3	2	3	1	1	-	-	-	2	-	1	2
Podarkeopsis glabrus	-	-	-	-	-	-	-	-	-	-	-	-	4	1	2	-	-	-	-	2	-
Podocerus cristatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Podocopida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pododesmus macrochisma	3	13	54	1	-	53	13	3	1	7	35	19	44	37	16	12	11	39	14	5	12
Polycirrus sp cmplx	2	3	1	4	2	2	4	5	2	4	6	3	3	4	7	1	8	3	8	2	10
Polycladida	-	-	4	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Polydora cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polygireulima rutila	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynoidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynoidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontogeneia intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontogeneia rostrata	-	-	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Porcellanidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Priapulidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prionospio lighti	-	-	-	-	-	1	-	-	-	-	2	-	2	-	-	-	-	1	-	-	-
Prionospio multibranchiata	-	2	-	-	-	-	-	-	-	-	-	-	1	3	-	-	1	-	-	-	-
Prionospio steenstrupi	5	14	5	12	10	16	10	6	13	15	20	23	35	16	16	29	36	19	16	17	25
Proceraea sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protodorvillea gracilis	-	-	2	-	-	1	-	-	-	1	-	1	4	-	-	-	-	-	5	-	-
Protomedeia grandimana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protomedeia prudens	20	13	8	10	9	4	7	9	7	4	5	6	-	1	2	-	1	5	2	3	-
Pseudochitinopoma occidentalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ptilosarcus gurneyi	-	1	2	3	-	3	2	4	2	2	1	1	2	4	1	2	4	1	1	4	9
Pugettia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Puncturella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pygospio elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retusa sp	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhabdocoela	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhachotropis sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Rhepoxynius abronius	3	4	4	12	24	9	11	13	15	29	13	13	5	29	16	12	6	14	26	20	18
Rhepoxynius daboius	2	-	-	1	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Rochefortia tumida	56	39	48	36	33	42	35	18	25	47	38	30	63	75	49	90	37	53	20	38	50
Rutiderma lomae	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-	-	1	1
Saxidomus gigantea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scalibregma californicum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Schistocomus hiltoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Scionella japonica	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	1	1	-	-	-
Scoletoma luti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scoloplos sp	-	-	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Scoloura phillipsi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Serpula vermicularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sertularella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sigalion spinosus	-	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Sige montereyensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sipuncula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smittina landsborovii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solamen columbianum	-	1	2	2	2	1	1	-	-	1	-	-	1	4	3	2	-	1	-	1	1
Solariella peramabilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solariella sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Solasteridae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-	-
Solen sicarius	3	3	6	2	5	7	1	1	5	2	1	7	-	-	2	-	-	4	-	-	-
Sphaerodoropsis minuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerodoropsis	-	1	-	2	-	-	-	2	-	-	-	-	3	6	-	4	1	3	1	2	1
Sphaerosyllis sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spio filicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spio limicola	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spiochaetopterus pottsi	1	2	-	-	2	-	-	-	1	-	-	1	-	1	-	-	-	1	-	-	-
Spiophanes berkeleyorum	-	-	1	-	-	1	-	-	-	-	-	-	1	2	-	-	-	-	1	-	-
Spiophanes bombyx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spiophanes norrisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spirontocaris sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-
Stegopoma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stenothoidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sthenelais berkeleyi	-	-	-	-	-	-	1	-	-	-	2	-	1	1	-	2	1	1	-	-	2
Sthenelais fusca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sthenelais sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
Streblosoma bairdi	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styelidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Suberites sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllidae Juvenile	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllis gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellina modesta	53	43	83	21	24	16	18	14	41	50	30	40	13	24	20	14	10	41	15	20	12
Tellina nuculoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Tenonia priops	2	-	-	-	3	1	-	1	1	2	-	-	-	-	1	-	-	-	1	-	-
Terebella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terebellidae Juvenile	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrastemma sp	-	-	1	1	-	-	-	-	1	6	1	-	4	5	3	3	3	-	2	2	2
Tharyx parvus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thelepus setosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Themiste pyroides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Themisto pacifica	1	-	-	-	-	1	-	3	1	-	1	-	-	-	-	-	-	1	1	-	-
Thorlaksonius sp	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thracia trapezoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thyasira flexuosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thysanocardia nigra	-	-	1	-	-	1	-	3	-	1	-	-	2	-	-	2	1	2	1	2	-
Tiron biocellata	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Trichotropis cancellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Tritella pilimana	-	1	4	1	-	-	-	1	-	-	-	-	-	-	-	-	2	1	-	-	-
Tubularia sp	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tubulariidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Turbonilla sp	9	19	18	8	4	5	3	-	1	1	4	1	1	-	3	1	4	-	4	2	4
Turtonia minuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typosyllis caeca	3	-	-	-	-	-	-	-	-	1	-	-	2	-	5	3	1	1	4	-	7
Typosyllis cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Typosyllis sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Valvatida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Velutina velutina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westwoodilla caecula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westwoodilla tone	2	10	10	9	5	19	9	4	9	5	3	11	6	9	4	9	1	9	4	4	6
Xylophaga washingtona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yoldia seminuda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zygonemertes sp	-	2	4	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-

Appendix G: 2009 Benthic Taxonomy Data

Table G-1 2009 benthic community index values by station and replicate.

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Benthic Index	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Total Abundance	2423	782	2422	293	390	753	2788	1353	661	1714	1545	1770	2629	1587	2029	124	156	121	702	471	769	1011	887	986
Annelid Abundance	129	54	99	57	80	169	578	451	239	222	270	201	164	126	124	52	62	69	201	186	226	175	193	178
Crustacean Abundance	1043	482	1306	184	160	387	741	451	172	460	574	692	612	519	673	46	75	34	348	158	363	531	424	427
Misc Abundance	10	8	10	7	9	7	63	43	21	29	26	22	23	16	10	7	3	2	8	9	9	10	17	8
Mollusc Abundance	1241	238	1007	45	141	190	1406	408	229	1003	675	855	1830	926	1222	19	16	16	145	118	171	295	253	373
Total Richness	67	50	77	50	65	66	120	109	80	91	99	102	100	84	93	37	38	38	85	76	96	80	82	79
Annelid Richness	24	19	28	19	27	25	49	41	35	39	42	41	36	26	34	14	16	18	34	32	45	38	34	29
Crustacean Richness	17	7	20	11	16	17	32	32	19	17	27	26	25	20	24	9	12	11	22	16	25	18	21	21
Mollusc Richness	5	6	6	5	5	4	11	10	8	5	6	8	10	12	4	6	3	2	6	5	4	5	3	4
Misc Richness	22	19	23	15	17	20	28	26	18	30	24	27	29	26	31	8	7	7	23	23	22	19	24	25
Total Biomass	17.12	6.90	14.47	1.52	2.94	2.96	10.34	8.15	2.82	6.27	6.78	6.42	13.42	12.62	13.58	2.29	1.62	1.49	4.92	2.16	4.74	6.98	5.93	7.20
Annelid Biomass	2.48	0.75	2.21	0.94	1.76	1.07	4.92	4.18	2.01	2.85	3.42	1.77	2.51	2.08	2.55	1.38	0.70	1.13	2.21	1.31	2.47	2.37	1.88	1.74
Crustacean Biomass	1.97	1.01	3.11	0.28	0.27	0.77	1.65	0.94	0.22	0.94	1.32	1.94	1.50	1.23	1.26	0.35	0.13	0.08	1.47	0.45	1.38	1.29	1.11	1.04
Mollusc Biomass	12.63	4.93	9.06	0.26	0.84	0.87	3.15	2.78	0.46	2.15	1.78	2.68	9.30	9.05	9.76	0.49	0.70	0.24	0.50	0.39	0.83	3.31	2.93	4.41
Misc Biomass	0.04	0.21	0.09	0.04	0.07	0.25	0.62	0.25	0.13	0.33	0.26	0.03	0.11	0.26	0.01	0.07	0.09	0.04	0.74	0.01	0.06	0.01	0.01	0.01
Shannon's Diveristy	1.70	1.87	1.78	2.56	3.06	2.56	3.13	3.54	3.45	2.41	2.91	2.51	2.09	2.24	2.21	2.92	2.66	2.96	3.03	3.37	3.42	2.56	2.79	2.72
Pielou's Evenness	0.40	0.48	0.41	0.65	0.73	0.61	0.65	0.75	0.79	0.53	0.63	0.54	0.45	0.51	0.49	0.81	0.73	0.81	0.68	0.78	0.75	0.58	0.63	0.62
Sw artz's Dominance	2	3	2	9	13	8	13	20	16	6	14	6	3	3	3	11	8	14	15	21	24	9	12	9

	BWT-BTHC-7			BWT-BTHC-7A		
Benthic Index	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Total Abundance	1103	855	955	1873	1286	1364
Annelid Abundance	201	185	197	534	570	546
Crustacean Abundance	372	276	389	443	208	305
Misc Abundance	27	23	17	45	25	25
Mollusc Abundance	503	371	352	851	483	488
Total Richness	110	106	104	140	111	133
Annelid Richness	48	45	45	68	58	63
Crustacean Richness	28	26	22	33	22	30
Misc Richness	8	9	7	10	10	8
Mollusc Richness	26	26	30	29	21	33
Total Biomass	8.68	8.49	7.69	17.40	14.71	11.58
Annelid Biomass	4.13	2.69	3.17	6.98	8.28	6.25
Crustacean Biomass	0.85	2.72	0.94	1.95	0.71	1.07
Mollusc Biomass	3.44	3.06	3.49	8.02	5.20	3.94
Misc Biomass	0.26	0.02	0.09	0.45	0.52	0.32
Shannon's Diveristy	3.14	3.24	3.00	3.44	3.38	3.75
Pielou's Evenness	0.67	0.70	0.65	0.70	0.72	0.77
Sw artz's Dominance	18	18	9	6	17	26

Table G-2 2009 abundance of benthic species by station and replicate. *P = present*

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Abietinaria sp	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accedomoera vagor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acila castrensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acteocina sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adontorhina cyclia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alvania compacta	9	-	45	1	51	23	590	59	10	726	362	521	1226	284	620	-	-	-	28	26	4	35	11	68
Alvania rosana	-	-	-	-	-	-	2	-	-	-	-	-	2	3	-	-	-	-	-	2	-	-	1	-
Americhelidium rectipalmum	-	-	-	-	-	-	5	6	3	1	5	-	1	1	-	-	-	1	-	-	2	1	-	-
Americhelidium shoemakeri	1	2	-	3	-	-	-	-	-	2	1	1	-	-	-	-	2	-	-	-	-	-	2	-
Americhelidium sp cmplx	-	-	-	-	1	2	3	-	-	-	1	-	1	-	5	-	-	1	-	-	2	-	-	1
Americhelidium variabilum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca agassizi	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca careyi	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Ampelisca cristata	1	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca hancocki	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Ampelisca lobata	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampharete acutifrons	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Ampharete cf *crassiseta*	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-
Ampharete sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphilochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphiporus sp	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Amphissa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitrite cirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitritinae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampithoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anobothrus gracilis	1	-	-	-	-	-	3	1	-	4	2	3	1	1	2	-	-	-	2	5	4	4	5	2
Anoplodactylus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aoroides sp	5	-	16	8	14	4	61	51	34	5	16	12	10	1	8	1	-	-	5	8	17	3	2	4
Aphelochaeta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apolochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argissa hamatipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Aricidea (Acmira) lopezi	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea (Allia) ramosa	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-
Aricidea catherinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea pseudoarticulata	8	4	3	-	-	-	-	-	-	-	-	-	2	4	5	-	-	-	-	2	3	2	-	2
Aricidea wassi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Abietinaria sp	-	-	-	-	-	-
Accedomoera vagor	-	-	-	-	-	-
Acila castrensis	1	-	-	-	-	-
Acteocina sp	-	-	-	-	-	-
Adontorhina cyclia	-	-	-	-	-	-
Alvania compacta	102	36	20	2	5	3
Alvania rosana	2	1	1	-	-	-
Americhelidium rectipalmum	-	-	-	13	6	7
Americhelidium shoemakeri	-	1	-	-	1	-
Americhelidium sp cmplx	-	-	-	1	2	-
Americhelidium variabilum	-	-	-	-	-	-
Ampelisca agassizi	-	-	-	1	-	-
Ampelisca careyi	-	-	-	-	-	-
Ampelisca cristata	-	-	-	-	-	-
Ampelisca hancocki	-	2	-	-	-	-
Ampelisca lobata	3	-	-	1	-	-
Ampharete acutifrons	-	-	-	-	-	-
Ampharete cf *crassiseta*	-	-	-	8	14	3
Ampharete sp Juvenile	-	-	-	-	-	-
Amphilochus picadurus	-	-	-	-	-	-
Amphiporus sp	-	-	1	-	-	-
Amphissa sp	-	-	-	-	-	-
Amphitrite cirrata	-	-	-	1	-	-
Amphitritinae Juvenile	-	-	-	-	-	-
Ampithoe sp	-	-	-	-	-	-
Anobothrus gracilis	4	4	1	10	3	-
Anoplodactylus sp	-	-	-	-	-	-
Aoroides sp	1	3	2	-	1	-
Aphelochaeta sp	-	-	-	-	-	-
Apolochus picadurus	-	-	-	-	-	-
Argissa hamatipes	-	1	-	1	1	1
Aricidea (Acmira) lopezi	-	-	-	2	2	-
Aricidea (Allia) ramosa	-	-	-	1	-	-
Aricidea catherinae	-	-	-	-	-	-
Aricidea pseudoarticulata	1	-	-	9	3	1
Aricidea wassi	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Armandia brevis	-	-	-	-	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Asabellides lineata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asteroidea	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Astyris gausapata	-	-	-	-	-	-	-	-	-	-	-	-	1	3	1	-	-	-	-	-	-	5	-	5
Atylus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axinopsida serricata	22	-	15	-	1	2	16	13	2	34	30	38	25	15	19	-	-	-	23	25	20	72	67	63
Balanidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Balcis thersites	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barantolla sp	-	-	4	-	-	-	-	-	-	1	-	-	5	-	-	-	-	-	-	-	-	-	-	-
Barentsia benedeni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia discreta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bathymedon pumilus	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Betapista dekkerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bipalponephtys cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bispira elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boccardia pugettensis	1	-	-	1	1	1	14	11	3	-	-	-	2	-	2	-	2	1	-	-	-	-	-	-
Boltenia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowerbankia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brachyura	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bruzelia tuberculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buskia nitens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Byblis millsi	-	-	1	-	-	-	7	8	-	7	3	1	2	5	4	-	-	1	15	6	16	6	12	4
Calcarea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calliopiidae	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Calocarides spinulicauda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campylaspis hartae	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Campylaspis rubromaculata	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer gracilis	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Cancer oregonensis	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer productus	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-
Candidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitella capitata cmplx	-	-	-	2	1	-	3	1	2	2	11	2	-	-	1	-	-	1	1	-	1	-	2	-
Caprella kennerlyi	-	-	-	-	-	-	-	2	-	-	1	-	3	-	-	-	-	-	1	-	-	-	-	-
Caprella mendax	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Caprellidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cardiomya pectinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Caulleriella pacifica	-	-	-	-	-	-	16	8	5	8	3	1	10	2	2	1	-	-	2	-	2	-	2	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Armandia brevis	-	-	-	-	-	-
Asabellides lineata	-	-	-	-	4	5
Asteroidea	-	-	-	1	-	-
Astyris gausapata	2	3	-	-	-	1
Atylus sp	-	-	-	-	-	-
Axinopsida serricata	14	14	9	12	13	19
Balanidae	-	-	-	-	-	-
Balcis thersites	-	-	-	-	-	-
Barantolla sp	-	2	2	-	2	-
Barentsia benedeni	-	-	-	-	-	-
Barentsia discreta	-	-	-	-	-	-
Barentsia gracilis	-	-	-	-	-	-
Bathymedon pumilus	-	-	-	-	-	-
Betapista dekkerae	-	-	-	-	-	-
Bipalponephtys cornuta	-	-	-	-	-	-
Bispira elegans	-	-	-	-	-	1
Boccardia pugettensis	-	-	-	-	5	-
Boltenia sp	-	-	-	-	-	-
Bowerbankia gracilis	-	-	-	-	-	-
Brachyura	-	-	-	1	-	-
Bruzelia tuberculata	-	-	-	-	-	-
Buskia nitens	-	-	-	-	-	-
Byblis millsi	9	7	6	79	25	38
Calcarea	-	-	-	2	-	-
Calliopiidae	-	-	-	-	-	-
Calocarides spinulicauda	-	-	-	-	-	-
Campylaspis hartae	-	-	-	1	-	1
Campylaspis rubromaculata	-	-	-	-	-	-
Cancer gracilis	-	-	-	1	-	-
Cancer oregonensis	-	-	-	-	-	-
Cancer productus	-	-	-	-	-	-
Cancer sp	-	-	-	-	-	-
Candidae	-	-	-	-	-	-
Capitella capitata cmplx	1	1	-	10	8	1
Caprella kennerlyi	-	-	-	-	-	-
Caprella mendax	-	-	-	-	-	-
Caprellidae Juvenile	-	-	-	-	-	-
Cardiomya pectinata	-	1	-	-	-	-
Caulleriella pacifica	7	1	13	11	14	20

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Celleporella hyalina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Celleporina robertsoniae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceriantharia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetoderma sp	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetozone sp	3	5	-	6	23	67	131	122	45	19	41	55	8	3	5	12	24	26	1	6	2	23	18	21
Chaperiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheilopora praelonga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheirimedeia macrodactyla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheirimedeia sp	9	-	-	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	-	1	-	-
Chelyosoma columbianum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Chiridota sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chitinopoma serrula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chone duneri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chone magna	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	1	-	-	-	1	-	-	-
Circeis spirillum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cirratulus sp	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clinocardium nuttallii	17	16	43	5	19	33	1	-	-	11	16	13	17	20	15	1	3	4	1	1	1	4	1	5
Clinocardium sp Juvenile	7	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clytia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coboldus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compsomyax subdiaphana	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Cossura pygodactylata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangon alaskensis	-	-	4	-	-	-	-	-	-	-	-	3	-	-	-	1	-	1	-	-	1	-	-	2
Crangon sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangonidae	2	-	-	-	-	-	-	1	-	-	2	-	-	-	1	-	-	-	1	-	-	-	-	1
Crassicorophium crassicorne	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Crepipatella dorsata	1	-	3	8	5	2	243	60	47	13	12	7	25	3	12	-	-	-	10	3	7	-	3	2
Cryptonatica affinis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	8	-	-	-
Cyclocardia ventricosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclopoida	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclostomata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclostremella concordia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cylichna alba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cylichna attonsa	3	-	1	-	-	2	3	-	-	1	1	-	3	-	-	-	-	1	-	1	-	-	-	-
Cylindroleberididae	-	-	2	1	1	2	3	1	-	-	-	1	2	-	2	3	-	3	1	-	-	3	-	-
Demonax sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dendrobeania sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Desdimelita desdichada	-	-	-	-	1	-	26	30	13	-	9	7	7	1	2	-	-	-	8	-	7	2	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Celleporella hyalina	-	-	-	-	-	-
Celleporina robertsoniae	-	-	-	-	-	-
Ceriantharia	-	-	-	-	-	-
Chaetoderma sp	-	-	-	-	-	-
Chaetozone sp	6	6	2	26	21	11
Chaperiidae	-	-	-	-	-	-
Cheilopora praelonga	-	-	-	-	-	-
Cheirimedeia macrodactyla	-	-	-	-	-	-
Cheirimedeia sp	-	-	-	-	-	-
Chelyosoma columbianum	-	-	-	-	-	-
Chiridota sp	-	-	-	2	1	-
Chitinopoma serrula	-	-	-	-	-	-
Chone duneri	-	-	-	-	3	-
Chone magna	-	-	-	-	-	-
Circeis spirillum	-	-	-	-	-	-
Cirratulus sp	2	-	2	-	-	-
Clinocardium nuttallii	-	1	3	1	-	5
Clinocardium sp Juvenile	-	-	-	-	-	-
Clytia sp	-	-	-	-	-	-
Coboldus sp	-	-	-	-	-	-
Compsomyax subdiaphana	-	-	-	-	-	-
Cossura pygodactylata	-	-	-	-	-	-
Crangon alaskensis	1	1	-	-	-	-
Crangon sp	-	-	-	-	-	-
Crangonidae	-	-	-	-	-	-
Crassicorophium crassicorne	-	4	-	1	-	1
Crepipatella dorsata	9	4	4	217	58	103
Cryptonatica affinis	-	-	1	5	2	1
Cyclocardia ventricosa	-	-	-	-	-	-
Cyclopoida	-	-	-	-	-	-
Cyclostomata	-	-	-	-	-	-
Cyclostremella concordia	-	-	-	-	-	-
Cylichna alba	-	-	-	-	-	-
Cylichna attonsa	1	-	-	-	3	2
Cylindroleberididae	-	-	-	2	1	1
Demonax sp	-	-	-	2	-	-
Dendrobeania sp	-	-	-	-	-	-
Desdimelita desdichada	7	5	7	28	2	9

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Diaperoecia claviformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diastylis pellucida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diastylis santamariensis	2	-	2	-	-	1	9	3	-	2	4	-	-	-	-	-	-	-	-	-	4	-	1	-
Diopatra ornata	2	-	2	-	4	-	-	1	-	2	4	3	4	4	2	-	-	2	2	3	6	1	1	3
Dipolydora brachycephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dipolydora cardalia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
Dipolydora socialis	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Dorvillea (Schistomeringos) longicornis	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Dorvilleidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilonereis longa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Dulichia sp	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dyopedos sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinoidea	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Edwardsia sipunculoides	-	1	2	1	1	2	3	1	-	2	1	-	2	1	-	1	-	-	3	1	-	2	1	2
Elassochirus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ennucula tenuis	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Eobrolgus chumashi	-	-	-	2	3	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eobrolgus spinosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eohaustorius washingtonianus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epigamia alexandri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epitonium sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ericthonius cf *brasiliensis*	-	-	5	-	3	-	1	2	2	2	-	1	2	-	-	-	-	-	-	-	3	-	-	-
Eteone sp	1	-	1	-	-	-	5	3	2	-	1	2	1	-	1	-	-	1	-	1	-	1	1	2
Eualus sp	-	-	-	-	-	-	1	5	-	-	5	3	3	-	1	-	-	-	6	-	10	-	-	-
Eualus subtilis	-	-	-	-	-	-	-	-	-	2	-	2	1	-	-	-	-	-	-	-	-	-	-	-
Euclymeninae	12	3	10	-	4	14	56	16	12	11	10	6	7	1	3	-	-	-	9	7	9	14	17	18
Eudistylia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eudorella pacifica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia californiensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia quadrioculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia sp N1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Eumida longicornuta	-	-	2	-	1	-	8	7	1	1	1	2	7	-	-	1	-	-	1	2	-	4	1	1
Eunoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eupentacta sp	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euphilomedes carcharodonta	948	439	1196	131	107	324	501	240	69	385	439	580	506	463	566	19	47	17	253	107	238	461	359	363
Euphysa ruthae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euphysa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Diaperoecia claviformis	-	-	-	-	-	-
Diastylis pellucida	-	-	-	-	-	-
Diastylis santamariensis	-	-	-	5	-	1
Diopatra ornata	7	4	3	5	3	1
Dipolydora brachycephala	-	-	-	-	-	-
Dipolydora cardalia	-	-	-	-	-	-
Dipolydora socialis	-	1	-	-	-	3
Dorvillea (Schistomeringos) longicornis	-	-	-	-	-	-
Dorvilleidae Juvenile	-	-	-	-	-	-
Drilonereis longa	-	-	-	-	-	-
Dulichia sp	1	-	-	-	-	-
Dyopedos sp	-	-	-	-	-	-
Echinoidea	-	-	-	1	1	1
Edwardsia sipunculoides	-	2	-	6	6	-
Elassochirus sp	-	-	-	-	-	-
Ennucula tenuis	-	-	1	-	-	-
Eobrolgus chumashi	-	-	-	-	-	-
Eobrolgus spinosus	-	-	-	-	-	-
Eohaustorius washingtonianus	-	-	-	-	-	-
Epigamia alexandri	-	-	-	-	-	-
Epitonium sp	1	-	-	-	-	-
Ericthonius cf *brasiliensis*	1	-	-	-	-	-
Eteone sp	-	2	-	8	3	6
Eualus sp	4	1	2	1	-	-
Eualus subtilis	2	-	-	-	2	3
Euclymeninae	2	3	1	2	5	17
Eudistylia sp	-	-	-	2	-	1
Eudorella pacifica	-	1	-	-	-	-
Eulalia californiensis	1	-	-	1	-	1
Eulalia quadrioculata	-	-	-	-	-	-
Eulalia sp N1	-	-	-	-	-	-
Eumida longicornuta	8	4	3	8	3	7
Eunoe sp	-	-	-	-	-	-
Eupentacta sp	-	-	-	-	-	-
Euphilomedes carcharodonta	250	182	307	212	140	152
Euphysa ruthae	-	-	-	-	-	-
Euphysa sp	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Eupolymnia heterobranchia	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira lewisii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira pallida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis blomstrandi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis habei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis lamelligera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exogone dwisula	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	1	-	-	-	-	-	-	-
Exogone lourei	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-	2	-	1	1	-
Eyakia robusta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fabia subquadrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flabelligera affinis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	2	-	-	-
Foxiphalus sp	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	1	-	3	-	-	-
Galathowenia oculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Gammaropsis ellisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gammaropsis sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gammaropsis thompsoni	-	-	-	-	-	-	8	17	7	2	1	1	4	2	9	-	-	-	1	6	2	-	-	-
Gastropteron pacificum	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	2	-	1	1
Gattyana cirrhosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gattyana treadwelli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glycera sp	3	-	1	2	-	1	5	9	5	2	1	4	1	-	7	1	-	-	7	6	7	1	1	4
Glycinde armigera	-	7	12	7	1	9	7	7	3	7	7	8	-	-	-	4	3	2	1	-	1	5	4	1
Glycinde picta	-	-	-	-	-	-	4	4	-	2	5	-	-	-	-	1	-	-	-	1	-	-	-	2
Glycinde Juvenile	23	6	1	1	2	4	19	9	3	8	14	9	3	2	-	-	5	3	6	4	12	5	12	10
Golfingiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goniada brunnea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goniada maculata	-	-	-	-	-	-	-	-	-	-	-	-	12	18	1	-	-	-	-	-	-	-	-	1
Halcampa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haliophasma geminatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haminoea vesicula	-	-	-	-	-	-	-	-	-	3	-	3	1	-	-	-	-	-	-	-	1	1	-	1
Harmothoe extenuata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe imbricata	-	-	-	-	-	-	1	1	-	-	-	1	1	-	-	-	-	-	2	-	6	-	-	-
Harmothoe multisetosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Harpacticoida	-	-	-	-	-	-	19	7	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hemipodia simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptacarpus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptacarpus stimpsoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hermundura fauveli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hesionidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heteromysis odontops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Eupolymnia heterobranchia	-	-	-	-	2	-
Euspira lewisii	-	-	-	-	-	-
Euspira pallida	-	-	-	-	-	-
Eusyllis blomstrandi	-	-	-	-	-	-
Eusyllis habei	4	4	1	11	5	5
Eusyllis lamelligera	-	-	-	-	-	-
Exogone dwisula	1	-	-	-	-	-
Exogone lourei	2	3	3	1	1	2
Eyakia robusta	-	-	-	-	-	-
Fabia subquadrata	-	-	-	-	-	-
Flabelligera affinis	-	2	1	-	-	-
Foxiphalus sp	-	-	-	2	2	3
Galathowenia oculata	-	-	-	-	-	-
Gammaropsis ellisi	3	-	2	-	-	-
Gammaropsis sp Juvenile	-	-	-	-	-	-
Gammaropsis thompsoni	2	1	3	1	-	-
Gastropteron pacificum	-	-	-	-	-	1
Gattyana cirrhosa	1	-	1	-	-	1
Gattyana treadwelli	-	-	-	-	-	-
Glycera sp	-	3	2	19	13	18
Glycinde armigera	1	3	6	13	9	8
Glycinde picta	2	2	-	-	-	5
Glycinde Juvenile	9	4	5	6	11	9
Golfingiidae	-	-	-	-	-	-
Goniada brunnea	-	-	-	-	-	-
Goniada maculata	-	-	-	-	-	-
Halcampa sp	-	-	-	-	-	-
Haliophasma geminatum	-	1	-	-	-	-
Haminoea vesicula	-	-	-	-	-	-
Harmothoe extenuata	1	-	1	2	1	-
Harmothoe imbricata	3	1	-	5	1	5
Harmothoe multisetosa	-	-	-	-	-	-
Harpacticoida	-	-	-	-	-	-
Hemipodia simplex	-	-	-	-	-	-
Heptacarpus sp	-	-	-	-	-	-
Heptacarpus stimpsoni	-	-	-	-	-	-
Hermundura fauveli	-	-	-	-	-	-
Hesionidae Juvenile	-	-	-	-	-	-
Heteromysis odontops	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Heterophoxus conlanae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heterophoxus ellisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heterophoxus sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hiatella arctica	-	-	-	4	1	1	181	79	61	14	23	15	8	5	3	-	-	-	2	3	22	-	3	-
Hima mendica	-	-	-	-	-	-	3	4	1	2	-	-	-	-	-	-	-	-	-	-	-	-	3	1
Hippolytidae	-	-	-	-	-	1	9	29	2	3	18	16	1	1	2	-	-	-	36	1	17	-	-	-
Hippomedon sp	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
Hirudinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoplonemertea	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-
Humilaria kennerleyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydractinia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idanthyrsus saxicavus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idoteidae	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ischnochitonidae	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kellia suborbicularis	-	-	-	-	-	-	4	1	-	2	2	5	-	-	-	-	-	-	-	-	2	-	-	-
Kroyera carinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kurtzia arteaga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	1	-	-	1
Lacuna vincta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-
Lanassa venusta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laonice sp	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laonome kroeyeri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laqueidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leitoscoloplos pugettensis	2	1	-	3	4	5	4	6	1	-	5	6	15	3	6	-	-	-	32	40	14	3	8	12
Lepidasthenia longicirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidepecreum gurjanovae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidonotus spiculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Leptochelia savignyi	14	3	14	2	4	5	31	8	4	16	12	11	32	11	24	1	-	-	2	8	7	3	3	3
Leptosynapta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leucilla nuttingi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leukoma staminea	3	3	4	-	2	3	2	2	1	1	-	3	-	1	3	-	-	-	-	-	-	-	-	-
Levinsenia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lineidae	2	-	1	1	1	2	7	3	2	7	5	2	2	1	-	1	1	-	1	1	-	1	-	-
Lirobittium eschrichtii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Lirobittium munitum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lirularia lirulata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lophopanopeus bellus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lottia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lucinoma annulatum	14	1	7	-	-	-	-	-	-	-	1	-	6	6	2	-	-	-	-	-	-	2	1	2

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Heterophoxus conlanae	-	-	-	1	-	3
Heterophoxus ellisi	-	1	-	-	-	-
Heterophoxus sp Juvenile	1	-	-	1	-	3
Hiatella arctica	12	6	47	44	25	55
Hima mendica	-	-	-	-	-	-
Hippolytidae	4	4	1	4	-	2
Hippomedon sp	1	1	-	2	2	-
Hirudinea	-	-	-	-	-	-
Hoplonemertea	-	1	-	-	-	-
Humilaria kennerleyi	-	-	-	-	-	1
Hydractinia sp	-	-	-	-	-	-
Idanthyrsus saxicavus	-	-	2	-	-	-
Idoteidae	-	-	-	-	-	-
Ischnochitonidae	-	-	-	-	-	-
Kellia suborbicularis	-	-	-	6	2	5
Kroyera carinata	-	-	-	-	-	-
Kurtzia arteaga	-	1	-	-	-	-
Lacuna vincta	-	-	1	-	-	-
Lanassa venusta	-	-	-	2	2	-
Laonice sp	-	-	-	1	-	3
Laonome kroeyeri	-	-	-	2	-	-
Laqueidae	1	-	-	-	-	-
Leitoscoloplos pugettensis	1	3	3	7	3	6
Lepidasthenia longicirrata	-	-	-	-	-	-
Lepidepecreum gurjanovae	-	-	-	2	1	-
Lepidonotus spiculus	-	-	-	-	-	-
Leptochelia savignyi	35	17	19	16	2	16
Leptosynapta sp	-	-	-	-	-	-
Leucilla nuttingi	-	-	-	-	-	-
Leukoma staminea	-	-	-	-	-	-
Levinsenia sp	-	-	-	-	-	-
Lineidae	9	2	7	6	4	3
Lirobittium eschrichtii	-	-	-	1	-	-
Lirobittium munitum	-	-	-	-	-	-
Lirularia lirulata	-	-	-	-	-	-
Lophopanopeus bellus	-	-	-	-	-	-
Lottia sp	-	-	-	-	-	-
Lucinoma annulatum	2	2	2	4	5	3

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Lumbrineridae Juvenile	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-	11	-	-	2	-
Lumbrineris californiensis	-	-	1	-	1	1	2	2	-	12	13	-	1	3	-	-	1	2	14	4	16	5	2	1
Lumbrineris latreilli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lyonsia californica	3	5	6	3	5	6	22	19	5	12	26	22	9	6	8	2	1	2	9	6	12	14	16	10
Lysippe labiata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma carlottensis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Macoma golikovi	-	-	-	-	-	-	-	-	1	-	1	-	1	-	1	-	-	-	-	1	-	-	-	-
Macoma nasuta	1	-	-	-	-	3	-	-	-	-	-	8	1	2	3	-	-	-	-	1	5	5	4	9
Macoma sp Juvenile	-	-	4	-	3	6	31	13	3	20	22	21	2	2	5	-	-	-	16	4	18	-	-	2
Macoma yoldiformis	-	-	-	1	-	-	-	1	-	4	3	1	8	1	4	-	-	-	3	6	5	8	6	7
Mactridae	14	30	11	10	15	23	7	3	-	4	1	-	6	3	1	7	4	4	1	-	-	-	1	1
Magelona longicornis	-	-	1	1	-	1	2	-	2	-	-	1	-	-	-	-	-	1	1	-	-	1	-	-
Magelona sacculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magelona sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maldanidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella bansei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella macginitiei	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella nigralba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Margarites pupillus	-	-	1	2	1	-	2	8	1	1	-	4	2	1	1	-	-	-	1	-	3	-	-	1
Mediomastus californiensis	9	-	5	-	1	2	1	-	1	1	2	1	2	21	11	-	-	-	-	5	4	16	18	22
Megalomma splendida	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
Megamoera subtener	-	-	-	-	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Megasurcula carpenteriana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melanochlamys diomedea	1	2	2	1	3	-	3	1	2	2	2	1	1	1	1	1	-	-	1	-	-	-	-	-
Melinna oculata	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Melitidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melphidippa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melphisana bola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Membranipora membranacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mesochaetopterus taylori	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mesocrangon munitella	-	-	1	-	-	1	4	7	-	7	8	7	4	2	2	-	-	1	-	-	7	-	1	-
Metacaprella kennerlyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metaphoxus frequens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microphthalmus sp	-	-	-	-	-	-	3	-	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Micropodarke dubia	-	-	-	-	-	-	11	17	31	1	2	9	-	-	-	-	-	-	2	-	6	1	2	-
Modiolus sp	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molgula sp	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monocorophium sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Lumbrineridae Juvenile	-	-	-	2	-	-
Lumbrineris californiensis	11	3	7	12	8	13
Lumbrineris latreilli	-	-	-	-	-	-
Lyonsia californica	13	15	16	35	8	16
Lysippe labiata	-	-	-	-	-	-
Macoma carlottensis	-	-	-	-	-	-
Macoma golikovi	-	-	1	1	-	-
Macoma nasuta	5	2	2	-	1	1
Macoma sp Juvenile	15	9	5	18	17	12
Macoma yoldiformis	12	9	3	8	2	9
Mactridae	1	-	-	-	-	2
Magelona longicornis	-	2	-	2	3	1
Magelona sacculata	-	-	-	-	-	-
Magelona sp Juvenile	-	-	-	-	-	-
Maldanidae Juvenile	-	-	-	-	-	-
Malmgreniella bansei	-	-	-	-	-	-
Malmgreniella macginitiei	-	-	-	-	3	-
Malmgreniella nigralba	-	-	-	-	-	-
Margarites pupillus	11	10	9	4	-	2
Mediomastus californiensis	9	19	10	43	36	14
Megalomma splendida	-	-	-	1	-	1
Megamoera subtener	-	-	-	-	-	3
Megasurcula carpenteriana	-	-	-	-	-	-
Melanochlamys diomedea	-	-	-	-	-	2
Melinna oculata	-	-	-	-	-	-
Melitidae Juvenile	-	-	-	-	-	-
Melphidippa sp	-	-	-	-	-	-
Melphisana bola	-	1	-	-	-	1
Membranipora membranacea	-	-	-	-	-	-
Mesochaetopterus taylori	-	-	-	-	-	-
Mesocrangon munitella	9	-	2	3	4	8
Metacaprella kennerlyi	-	-	-	-	-	-
Metaphoxus frequens	-	-	-	-	-	-
Microphthalmus sp	-	-	-	1	2	1
Micropodarke dubia	-	-	-	16	10	12
Modiolus sp	-	-	-	1	-	-
Molgula sp	-	-	-	-	-	1
Monocorophium sp	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Monticellina serratiseta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
Monticellina sp N1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Munnogonium tillerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Musculus discors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus glacialis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus niger	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus sp Juvenile	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
Mya arenaria	5	5	6	2	3	5	13	9	2	5	7	3	6	3	3	3	-	1	2	1	2	2	1	-
Mya sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Myosoma spinosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mytilus sp	-	-	-	-	-	-	2	3	1	1	1	1	-	-	1	-	-	-	-	-	-	-	-	-
Myxicola infundibulum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neaeromya rugifera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebalia sp	-	-	-	-	-	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Nematoda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemertea	-	-	-	-	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Nemocardium centifilosum	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neosabellaria cementarium	-	-	-	-	1	-	-	-	1	-	3	1	-	-	-	-	-	-	-	-	1	-	1	-
Neotrypaea sp	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	1	-	1	-	-
Nephasoma minutum	-	1	1	-	-	-	11	7	5	17	16	-	7	4	3	-	-	-	-	1	4	4	15	4
Nephtys sp	7	4	3	3	3	4	6	3	-	4	11	5	14	7	12	1	5	4	20	13	17	18	22	22
Nereididae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nereis sp	-	1	1	2	1	3	12	9	3	1	3	1	1	5	1	-	-	-	-	2	-	-	-	-
Nicolea zostericola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nicomache lumbricalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nicomache personata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Notomastus hemipodus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Notomastus latericeus	7	-	6	1	2	28	17	8	5	7	12	2	1	2	4	-	-	-	-	-	1	4	3	5
Notomastus lineatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nucella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nudibranchia	-	-	-	-	-	-	1	4	-	1	-	2	2	-	1	-	1	-	1	1	-	-	-	-
Nutricola lordi	16	5	16	-	-	2	3	2	-	2	1	5	10	4	4	-	-	-	4	6	4	8	13	4
Nutricola tantilla	12	4	13	2	18	54	84	81	48	68	91	61	36	44	32	-	-	-	20	11	24	30	33	33
Nymphon pixellae	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
Nynantheae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Odontosyllis phosphorea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Odostomia sp	-	-	-	1	-	1	2	1	-	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-
Oerstedia dorsalis	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Oligochaeta	3	2	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	2	1	-	2

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Monticellina serratiseta	-	-	-	-	-	-
Monticellina sp N1	-	-	1	-	-	-
Munnogonium tillerae	-	-	-	-	-	-
Musculus discors	-	-	-	-	-	-
Musculus glacialis	-	-	-	-	-	-
Musculus niger	-	-	-	-	-	-
Musculus sp Juvenile	-	-	-	-	-	-
Mya arenaria	-	1	4	18	8	10
Mya sp Juvenile	-	-	-	-	-	-
Myosoma spinosa	-	-	-	-	-	-
Mytilus sp	-	-	-	-	-	1
Myxicola infundibulum	-	-	-	4	6	2
Neaeromya rugifera	-	-	-	-	-	-
Nebalia sp	-	-	-	-	-	-
Nematoda	-	-	-	-	-	-
Nemertea	-	-	-	-	-	-
Nemocardium centifilosum	-	-	1	-	-	-
Neosabellaria cementarium	3	-	4	2	2	4
Neotrypaea sp	1	-	1	-	-	-
Nephasoma minutum	6	10	-	-	1	5
Nephtys sp	13	15	11	5	6	9
Nereididae Juvenile	-	-	-	-	-	-
Nereis sp	-	-	1	1	2	9
Nicolea zostericola	-	4	1	-	-	-
Nicomache lumbricalis	-	-	-	-	-	-
Nicomache personata	5	-	-	-	-	-
Notomastus hemipodus	-	-	-	2	1	-
Notomastus latericeus	2	-	-	5	1	-
Notomastus lineatus	-	-	-	-	-	-
Nucella sp	-	-	-	-	-	-
Nudibranchia	1	1	1	2	2	1
Nutricola lordi	3	4	1	4	8	11
Nutricola tantilla	6	8	4	23	-	-
Nymphon pixellae	2	-	-	-	-	-
Nynantheae	1	-	-	-	-	-
Odontosyllis phosphorea	2	-	6	-	-	-
Odostomia sp	1	2	2	-	-	-
Oerstedia dorsalis	-	-	-	-	-	-
Oligochaeta	1	-	-	1	1	1

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Olivella (Callianax) baetica	-	1	-	3	1	-	1	2	-	-	-	1	1	1	-	1	4	-	-	-	-	-	1	-
Onuphidae Juvenile	-	1	3	1	1	-	7	7	1	-	13	2	4	3	3	1	-	1	7	6	5	3	15	4
Onuphis elegans	2	-	7	3	6	2	13	8	7	9	3	2	-	2	1	2	-	1	4	5	1	2	4	4
Onuphis iridescens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	2	-	-
Opercularella lacerata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelia limacina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelina acuminata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1
Ophiodermella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophiodromus pugettensis	-	-	-	-	-	1	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-
Ophiurida	-	1	-	2	-	1	-	-	-	-	-	3	4	1	3	1	-	1	-	-	-	-	-	-
Opisa tridentata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	1
Orchomene decipiens	-	-	-	-	-	-	5	6	2	-	7	-	-	-	1	-	-	-	-	-	-	-	-	-
Orchomene pacificus	-	-	3	-	1	-	3	-	-	-	1	4	1	2	3	1	3	2	-	1	1	4	3	3
Orchomene pinguis	29	17	21	25	15	24	-	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	-	-
Oregonia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Owenia sp	1	3	1	-	1	1	6	9	1	2	1	-	-	1	-	-	1	-	6	3	9	1	2	1
Pachynus barnardi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacifoculodes sp	2	-	1	1	-	1	2	1	-	-	4	2	-	1	-	3	1	-	1	3	6	4	2	1
Pagurus sp	-	-	-	-	-	-	3	-	-	-	-	1	-	1	1	-	-	-	1	-	1	-	1	-
Paleanotus bellis	-	-	-	1	3	1	42	18	18	6	5	11	1	-	-	-	-	-	1	-	11	-	-	-
Paleonemertea	6	3	4	2	4	-	29	21	8	-	1	12	1	1	3	2	1	-	-	5	2	1	-	-
Pandalus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pandora bilirata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pandora filosa	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1	-	-	1	2	1	1	3	1
Panopea abrupta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paradialychone bimaculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paradulichia typica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parametaphoxus quaylei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paranaitis polynoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parandalia fauveli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parapleustinae	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Paraprionospio alata	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Pardalisca tenuipes	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-
Parvilucina tenuisculpta	1038	137	726	-	-	1	35	3	4	33	37	53	336	456	406	-	-	-	3	6	7	84	64	132
Pectinaria granulata	2	-	4	-	3	2	21	13	2	20	16	14	14	8	6	-	-	-	19	3	20	7	6	5
Pectinidae	-	-	1	-	-	-	2	1	-	-	-	-	1	-	1	-	-	-	1	-	-	-	-	-
Pentamera sp	-	-	-	-	-	-	2	1	1	1	2	1	-	-	-	-	1	-	-	1	-	-	1	1
Petaloproctus tenuis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pherusa plumosa	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Olivella (Callianax) baetica	-	-	3	1	-	2
Onuphidae Juvenile	3	7	10	1	7	5
Onuphis elegans	-	2	-	3	-	-
Onuphis iridescens	-	-	-	-	-	-
Opercularella lacerata	-	-	-	-	-	-
Ophelia limacina	-	-	-	-	-	-
Ophelina acuminata	-	-	1	-	-	-
Ophiodermella sp	-	-	-	-	-	-
Ophiodromus pugettensis	3	3	3	-	1	-
Ophiurida	4	1	2	-	-	-
Opisa tridentata	-	-	-	1	-	3
Orchomene decipiens	3	-	1	41	8	10
Orchomene pacificus	2	3	1	-	-	3
Orchomene pinguis	-	-	-	-	-	-
Oregonia gracilis	-	-	-	-	-	-
Owenia sp	1	-	1	12	10	14
Pachynus barnardi	-	-	-	-	-	-
Pacifoculodes sp	2	6	-	1	-	-
Pagurus sp	-	3	1	1	3	1
Paleanotus bellis	4	4	6	12	5	20
Paleonemertea	1	-	3	6	5	1
Pandalus sp	-	-	-	-	-	-
Pandora bilirata	-	-	-	-	-	-
Pandora filosa	1	1	-	5	-	5
Panopea abrupta	-	-	-	-	-	-
Paradialychone bimaculata	-	-	-	-	-	-
Paradulichia typica	-	-	-	-	-	-
Parametaphoxus quaylei	-	-	-	-	-	-
Paranaitis polynoides	-	-	-	-	-	-
Parandalia fauveli	1	1	-	-	-	-
Parapleustinae	-	-	-	-	-	-
Paraprionospio alata	-	-	-	-	-	1
Pardalisca tenuipes	-	-	-	8	-	3
Parvilucina tenuisculpta	248	198	175	393	265	119
Pectinaria granulata	10	22	19	51	33	70
Pectinidae	1	1	2	8	5	11
Pentamera sp	-	1	1	17	4	12
Petaloproctus tenuis	-	-	-	-	-	-
Pherusa plumosa	-	-	-	1	-	1

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Pholoe minuta	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Pholoe sp	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Pholoides asperus	-	-	-	-	-	-	1	-	2	2	4	2	-	-	-	-	-	-	-	-	1	-	-	-
Phoronida	1	2	1	-	2	2	2	3	2	2	-	-	-	1	-	-	-	1	1	-	-	2	-	1
Photis sp	-	-	1	1	2	7	3	2	-	-	3	2	1	-	2	-	-	-	-	-	-	-	1	-
Phyllochaetopterus prolifica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce cuspidata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce groenlandica	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-	-	1	-	-	-	1	1	1	-
Phyllodoce hartmanae	4	-	-	1	1	1	2	2	-	3	-	-	1	1	1	-	-	1	1	-	3	-	2	-
Phyllodoce longipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-
Phyllodoce maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Phyllodoce sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Phyllodoce williamsi	-	-	-	-	-	-	8	3	-	3	6	3	-	-	-	-	-	-	-	-	3	-	-	-
Phyllodocidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phylo felix	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Pilargis maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinnixa sp	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2	-	-	-	-	-	-	2	-	2
Pinnotheridae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pionosyllis uraga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piscicolidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pista elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pista estevanica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pista sp Juvenile	-	1	-	-	-	-	1	1	-	4	1	3	3	-	3	-	-	-	1	1	-	-	-	-
Platynereis bicanaliculata	-	-	1	-	1	1	8	12	2	4	5	12	7	1	5	-	-	-	6	1	10	-	-	-
Pleurogonium rubicundum	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	1	-	-
Pleusirus secorrus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleusymtes sp	2	-	7	-	1	2	6	8	4	-	8	3	2	3	4	1	1	-	-	1	2	2	3	5
Podarkeopsis glabrus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Podocerus cristatus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Podocopida	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pododesmus macrochisma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polycirrus sp cmplx	7	2	4	2	4	2	8	5	1	4	3	1	4	2	3	4	1	3	6	-	1	1	-	1
Polycladida	-	-	-	-	-	-	1	4	1	-	-	1	1	1	-	-	-	-	1	-	1	-	-	-
Polydora cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polygireulima rutila	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynoidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynoidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontogeneia intermedia	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontogeneia rostrata	-	-	-	-	-	-	-	1	3	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Pholoe minuta	-	-	-	-	-	1
Pholoe sp	-	-	-	4	-	-
Pholoides asperus	20	6	18	4	1	8
Phoronida	-	1	2	2	1	-
Photis sp	3	-	-	-	-	-
Phyllochaetopterus prolifica	9	1	2	-	-	-
Phyllodoce cuspidata	-	-	-	-	-	1
Phyllodoce groenlandica	-	-	-	3	2	1
Phyllodoce hartmanae	-	2	-	-	1	1
Phyllodoce longipes	2	-	-	1	-	1
Phyllodoce maculata	-	-	-	-	-	-
Phyllodoce sp Juvenile	-	-	-	-	-	-
Phyllodoce williamsi	-	-	-	16	92	12
Phyllodocidae Juvenile	-	-	-	-	-	-
Phylo felix	-	-	-	-	-	-
Pilargis maculata	-	1	-	-	-	-
Pinnixa sp	-	-	2	-	1	3
Pinnotheridae Juvenile	-	-	-	-	-	-
Pionosyllis uraga	-	-	-	-	-	-
Piscicolidae	-	-	-	-	-	1
Pista elongata	1	-	-	1	-	2
Pista estevanica	1	1	-	-	-	1
Pista sp Juvenile	-	1	-	1	-	-
Platynereis bicanaliculata	9	2	6	-	-	2
Pleurogonium rubicundum	-	-	-	-	-	-
Pleusirus secorrus	-	-	-	-	-	-
Pleusymtes sp	-	-	1	-	-	1
Podarkeopsis glabrus	-	-	-	1	1	-
Podocerus cristatus	-	-	-	-	-	-
Podocopida	-	-	-	-	-	-
Pododesmus macrochisma	-	-	-	-	-	-
Polycirrus sp cmplx	3	6	3	18	20	11
Polycladida	-	1	1	-	-	-
Polydora cornuta	-	-	-	-	-	-
Polygireulima rutila	-	-	-	-	-	-
Polynoidae	-	-	-	-	-	-
Polynoidae Juvenile	-	-	-	-	-	-
Pontogeneia intermedia	-	-	-	-	-	-
Pontogeneia rostrata	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Porcellanidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Priapulidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prionospio lighti	3	4	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
Prionospio multibranchiata	-	-	-	-	1	1	-	1	1	3	1	-	-	1	-	-	1	-	-	1	3	1	1	-
Prionospio steenstrupi	25	6	20	16	7	14	37	44	20	47	40	18	23	28	22	21	13	16	33	41	30	33	29	23
Proceraea sp	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Protodorvillea gracilis	-	-	-	-	-	-	74	73	49	6	2	1	1	1	1	-	-	-	-	-	-	-	-	1
Protomedeia grandimana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protomedeia prudens	-	4	8	9	4	9	7	4	-	1	3	6	2	2	7	-	1	2	1	3	1	13	4	8
Pseudochitinopoma occidentalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ptilosarcus gurneyi	-	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pugettia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Puncturella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pygospio elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retusa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhabdocoela	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhachotropis sp	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	1
Rhepoxynius abronius	15	16	13	1	1	1	-	2	-	7	1	5	14	17	19	16	15	4	4	7	-	14	15	16
Rhepoxynius daboius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rochefortia tumida	31	10	37	-	3	6	62	18	20	16	18	3	56	43	32	-	-	2	7	5	12	16	8	14
Rutiderma lomae	1	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Saxidomus gigantea	8	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Scalibregma californicum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Schistocomus hiltoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scionella japonica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	2
Scoletoma luti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scoloplos sp	-	-	-	2	1	-	2	-	-	6	5	1	-	-	-	-	-	-	-	-	-	-	-	-
Scoloura phillipsi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Serpula vermicularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sertularella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sigalion spinosus	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Sige montereyensis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Sipuncula	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smittina landsborovii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solamen columbianum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-
Solariella peramabilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solariella sp Juvenile	2	2	2	-	-	3	1	-	1	-	-	2	-	1	-	-	-	-	-	-	-	-	-	1

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Porcellanidae	-	-	-	-	-	-
Priapulidae	-	-	-	-	-	-
Prionospio lighti	-	-	-	-	-	-
Prionospio multibranchiata	1	1	3	12	36	36
Prionospio steenstrupi	15	20	23	93	124	133
Proceraea sp	1	-	-	-	-	-
Protodorvillea gracilis	2	1	1	-	1	-
Protomedeia grandimana	-	-	-	-	-	-
Protomedeia prudens	1	1	3	-	1	12
Pseudochitinopoma occidentalis	-	-	-	-	-	-
Ptilosarcus gurneyi	-	-	-	-	-	-
Pugettia gracilis	1	-	-	-	-	-
Puncturella sp	-	-	-	-	-	-
Pygospio elegans	-	-	-	-	-	-
Retusa sp	-	-	-	-	-	-
Rhabdocoela	-	-	-	-	-	-
Rhachotropis sp	-	1	-	-	-	-
Rhepoxynius abronius	16	25	19	7	1	8
Rhepoxynius daboius	-	-	-	-	-	-
Rochefortia tumida	32	31	24	32	43	76
Rutiderma lomae	-	-	1	1	1	2
Saxidomus gigantea	-	-	-	-	1	1
Scalibregma californicum	-	-	-	-	-	1
Schistocomus hiltoni	-	-	-	-	-	-
Scionella japonica	-	-	-	2	7	3
Scoletoma luti	-	-	-	-	-	-
Scoloplos sp	-	-	-	3	-	-
Scoloura phillipsi	-	-	-	-	-	-
Serpula vermicularis	-	-	-	-	-	-
Sertularella sp	-	-	-	-	-	-
Sigalion spinosus	-	1	-	-	1	-
Sige montereyensis	-	-	1	-	-	-
Sipuncula	-	-	-	-	-	-
Smittina landsborovii	-	-	-	-	-	-
Solamen columbianum	-	-	1	1	-	1
Solariella peramabilis	-	-	-	-	-	-
Solariella sp Juvenile	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Solasteridae	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-
Solen sicarius	4	3	9	1	1	4	-	-	-	4	1	1	6	7	10	-	-	-	-	1	-	2	6	-
Sphaerodoropsis minuta	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerodoropsis sphaerulifer	-	-	1	-	-	-	1	-	-	2	-	-	-	-	1	-	-	-	-	-	1	-	2	-
Sphaerosyllis sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spio filicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spio limicola	-	-	1	-	-	2	-	-	-	3	5	-	-	-	1	-	-	-	4	1	-	4	1	1
Spiochaetopterus pottsi	1	1	-	-	-	-	2	2	-	-	-	1	-	-	1	1	-	-	-	2	-	-	-	-
Spiophanes berkeleyorum	-	1	-	2	-	-	1	2	1	-	-	-	-	-	-	1	-	-	4	4	1	2	1	-
Spiophanes bombyx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Spiophanes norrisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spirontocaris sp	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-
Stegopoma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stenothoidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sthenelais berkeleyi	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-
Sthenelais fusca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sthenelais sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Streblosoma bairdi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Styelidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Suberites sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllis gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellina modesta	29	5	44	1	9	10	89	19	19	18	15	59	31	10	25	3	2	-	5	4	10	4	4	5
Tellina nuculoides	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-
Tenonia priops	-	-	-	-	-	1	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Terebella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terebellidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrastemma sp	-	-	-	-	1	-	-	1	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-
Tharyx parvus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thelepus setosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Themiste pyroides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Themisto pacifica	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorlaksonius sp	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thracia trapezoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thyasira flexuosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thysanocardia nigra	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-
Tiron biocellata	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichotropis cancellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Solasteridae	3	4	-	2	1	2
Solen sicarius	1	-	3	1	-	2
Sphaerodoropsis minuta	-	-	-	-	-	-
Sphaerodoropsis sphaerulifer	2	3	2	1	-	2
Sphaerosyllis sp	-	2	1	1	-	3
Spio filicornis	-	-	-	-	-	-
Spio limicola	-	-	-	4	2	-
Spiochaetopterus pottsi	-	-	1	-	-	1
Spiophanes berkeleyorum	-	-	-	1	2	-
Spiophanes bombyx	-	-	-	2	-	-
Spiophanes norrisi	-	-	-	-	-	-
Spirontocaris sp	1	-	2	-	-	4
Stegopoma sp	-	-	-	-	-	-
Stenothoidae	-	-	-	-	-	-
Sthenelais berkeleyi	1	-	-	-	-	1
Sthenelais fusca	-	-	-	-	-	-
Sthenelais sp Juvenile	-	-	-	-	-	-
Streblosoma bairdi	2	-	2	1	1	-
Styelidae	-	-	-	-	-	-
Suberites sp	-	-	-	-	-	-
Syllidae Juvenile	-	-	-	-	-	-
Syllis gracilis	-	-	-	-	-	-
Tellina modesta	6	9	5	1	9	4
Tellina nuculoides	-	-	1	1	-	1
Tenonia priops	-	-	-	-	-	-
Terebella sp	-	-	-	-	1	-
Terebellidae Juvenile	-	-	-	-	-	3
Tetrastemma sp	-	-	-	-	-	-
Tharyx parvus	-	-	-	-	-	-
Thelepus setosus	-	-	-	-	-	-
Themiste pyroides	-	-	-	-	-	-
Themisto pacifica	-	-	-	-	-	-
Thorlaksonius sp	-	-	-	-	-	-
Thracia trapezoides	-	-	-	-	-	-
Thyasira flexuosa	-	-	-	-	-	-
Thysanocardia nigra	-	-	-	-	-	-
Tiron biocellata	-	-	-	1	-	-
Trichotropis cancellata	-	1	-	2	1	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-5A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Tritella pilimana	-	-	-	-	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Tubularia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tubulariidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbonilla sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turtonia minuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typosyllis caeca	1	1	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	4	4
Typosyllis cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typosyllis sp Juvenile	-	-	-	-	-	-	2	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Valvatida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Velutina velutina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westwoodilla caecula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westwoodilla tone	9	-	7	-	-	1	9	2	2	13	14	17	7	1	3	-	-	-	6	3	9	9	8	6
Xylophaga washingtona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yoldia seminuda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Zygonemertes sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Tritella pilimana	1	1	1	-	-	-
Tubularia sp	-	-	-	-	-	-
Tubulariidae	-	-	-	-	-	-
Turbonilla sp	-	-	-	-	-	-
Turtonia minuta	-	-	-	-	-	-
Typosyllis caeca	-	2	1	9	-	3
Typosyllis cornuta	-	-	-	-	-	-
Typosyllis sp Juvenile	-	-	-	4	-	-
Valvatida	-	-	-	-	-	-
Velutina velutina	-	-	-	-	-	-
Westwoodilla caecula	-	-	-	-	-	-
Westwoodilla tone	7	2	5	2	1	2
Xylophaga washingtona	-	-	-	-	-	-
Yoldia seminuda	-	-	-	-	-	-
Zygonemertes sp	-	-	-	-	1	0

Appendix H: 2011 Benthic Taxonomy Data

Table H-1 2011 benthic community index values by station and replicate.

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Benthic Index	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Total Abundance	340	699	403	431	240	322	1290	858	1221	501	511	537	659	612	645	169	172	225	603	413	370
Annelid Abundance	42	44	57	88	95	79	947	549	749	86	110	124	49	35	61	65	57	44	217	87	72
Crustacean Abundance	232	280	269	221	79	156	170	175	226	215	177	185	267	244	212	60	66	136	159	123	153
Misc Abundance	63	369	67	108	59	75	84	82	117	185	200	202	335	325	356	30	27	29	209	196	135
Mollusc Abundance	3	6	10	14	7	12	89	52	129	15	24	26	8	8	16	14	22	16	18	7	10
Total Richness	28	44	42	68	46	59	108	106	109	75	78	85	62	56	65	62	47	57	106	62	62
Annelid Richness	9	11	16	21	19	20	48	53	50	27	35	30	23	19	25	27	19	16	50	26	23
Crustacean Richness	8	10	10	21	11	18	27	22	22	22	18	26	15	16	16	12	15	21	24	18	16
Mollusc Richness	10	18	13	21	12	16	21	18	23	19	18	19	20	17	20	16	7	12	23	13	15
Misc Richness	1	5	3	5	4	5	12	13	14	7	7	10	4	4	4	7	6	8	9	5	8
Total Biomass	2.23	6.01	3.08	2.64	1.85	3.03	13.89	7.18	11.40	3.28	3.44	7.26	5.94	5.74	9.01	2.41	1.76	1.30	7.62	5.46	6.31
Annelid Biomass	0.35	0.26	0.76	0.88	1.11	1.47	10.98	5.77	8.23	0.97	0.84	1.21	0.31	0.56	0.53	1.03	0.89	0.57	2.90	0.94	0.86
Crustacean Biomass	0.54	0.66	0.53	0.36	0.09	0.47	0.22	0.34	0.16	0.82	0.31	2.87	0.49	0.67	0.79	0.79	0.60	0.32	0.63	0.16	1.10
Mollusc Biomass	1.33	5.08	1.74	1.36	0.64	1.02	2.04	0.88	2.16	1.36	2.12	3.10	5.13	4.45	7.54	0.58	0.18	0.38	3.96	4.35	4.33
Misc Biomass	0.01	0.01	0.05	0.04	0.01	0.07	0.65	0.19	0.85	0.13	0.17	0.08	0.01	0.06	0.15	0.01	0.09	0.03	0.13	0.01	0.02
Shannon's Diveristy	1.97	2.03	2.07	3.36	3.22	3.36	2.81	3.38	3.38	2.90	3.19	3.57	2.20	2.08	2.19	3.57	3.33	3.20	3.78	2.92	2.91
Pielou's Evenness	0.59	0.54	0.55	0.80	0.84	0.82	0.60	0.72	0.72	0.67	0.73	0.80	0.53	0.52	0.52	0.87	0.87	0.79	0.81	0.71	0.71
Sw artz's Dominance	5	3	5	14	14	16	14	20	20	10	15	24	4	3	4	26	16	16	27	11	9

	BWT-BTHC-7			BWT-BTHC-7A		
Benthic Index	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Total Abundance	765	735	766	1723	1766	1201
Annelid Abundance	156	124	246	1001	1032	634
Crustacean Abundance	247	248	261	224	250	235
Misc Abundance	332	341	224	340	330	240
Mollusc Abundance	30	22	35	158	154	92
Total Richness	101	96	110	153	139	122
Annelid Richness	41	37	46	72	67	55
Crustacean Richness	29	27	33	38	35	37
Mollusc Richness	22	21	20	25	24	19
Misc Richness	9	11	11	18	13	11
Total Biomass	7.65	9.05	7.51	22.85	25.03	22.65
Annelid Biomass	2.01	2.55	2.58	11.71	16.77	14.48
Crustacean Biomass	0.63	0.31	0.74	1.45	1.42	1.68
Mollusc Biomass	4.72	5.92	4.05	6.06	6.05	4.05
Misc Biomass	0.29	0.27	0.14	3.63	0.79	2.44
Shannon's Diveristy	3.06	3.11	3.56	3.56	3.39	3.50
Pielou's Evenness	0.66	0.68	0.76	0.71	0.69	0.73
Sw artz's Dominance	15	*17*	24	*24*	19	21

Table H-2 2011 abundance of benthic species by station and replicate. *P = present*

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Abietinaria sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accedomoera vagor	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Acila castrensis	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Acteocina sp	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Adontorhina cyclia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	3	-	-	-
Alvania compacta	-	-	-	13	22	22	-	3	-	2	-	1	2	4	-	-	-	-	1	-	1
Alvania rosana	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-
Americhelidium rectipalmum	-	-	-	-	-	-	1	3	2	1	-	1	-	1	-	3	2	-	-	-	-
Americhelidium shoemakeri	1	-	1	-	-	1	2	1	-	2	-	2	-	-	1	-	-	-	-	1	-
Americhelidium sp cmplx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Americhelidium variabilum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca agassizi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca careyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
Ampelisca cristata	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
Ampelisca hancocki	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca lobata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampharete acutifrons	-	-	-	-	-	-	-	-	-	-	1	4	-	-	-	2	-	-	-	-	-
Ampharete cf *crassiseta*	-	-	-	-	-	-	2	-	8	-	-	-	-	-	-	-	-	-	2	-	-
Ampharete sp Juvenile	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Amphilochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphiporus sp	-	-	-	-	-	1	-	1	-	2	-	1	-	-	-	-	-	-	-	-	-
Amphissa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitrite cirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphitritinae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ampithoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anobothrus gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Anoplodactylus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	3	-	-	-
Aoroides sp	-	-	1	29	11	13	25	23	19	3	17	17	1	5	-	-	-	-	2	-	2
Aphelochaeta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apolochus picadurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argissa hamatipes	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3	-	1	-	-	-
Aricidea (Acmira) lopezi	1	-	1	-	1	-	-	-	-	-	-	2	-	1	-	-	-	-	4	3	-
Aricidea (Allia) ramosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aricidea catherinae	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Aricidea pseudoarticulata	-	-	-	-	-	-	-	1	-	-	2	-	1	1	3	-	-	-	1	-	-
Aricidea wassi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Abietinaria sp	-	-	-	-	-	-
Accedomoera vagor	-	-	-	-	-	-
Acila castrensis	2	1	1	-	-	-
Acteocina sp	-	-	-	3	20	7
Adontorhina cyclia	1	-	-	-	-	-
Alvania compacta	3	-	1	1	-	4
Alvania rosana	-	-	-	-	-	-
Americhelidium rectipalmum	-	-	1	6	2	4
Americhelidium shoemakeri	2	3	2	-	-	1
Americhelidium sp cmplx	-	-	-	-	-	-
Americhelidium variabilum	-	-	-	-	-	-
Ampelisca agassizi	-	-	-	1	-	-
Ampelisca careyi	-	1	1	-	-	1
Ampelisca cristata	-	-	-	-	1	-
Ampelisca hancocki	-	-	-	-	-	-
Ampelisca lobata	-	-	4	-	2	1
Ampharete acutifrons	-	-	-	-	-	-
Ampharete cf *crassiseta*	-	-	-	26	52	19
Ampharete sp Juvenile	-	-	-	-	-	-
Amphilochus picadurus	-	-	-	-	-	-
Amphiporus sp	-	2	1	-	-	-
Amphissa sp	-	-	-	-	1	-
Amphitrite cirrata	-	-	-	-	-	-
Amphitritinae Juvenile	1	-	-	-	-	-
Ampithoe sp	-	-	-	-	-	-
Anobothrus gracilis	1	-	-	-	1	2
Anoplodactylus sp	-	-	-	-	-	-
Aoroides sp	1	3	2	-	-	3
Aphelochaeta sp	-	-	-	-	-	-
Apolochus picadurus	-	-	1	-	1	-
Argissa hamatipes	-	-	-	-	-	-
Aricidea (Acmira) lopezi	-	3	-	1	2	-
Aricidea (Allia) ramosa	-	-	-	-	-	-
Aricidea catherinae	-	-	-	-	-	-
Aricidea pseudoarticulata	-	-	1	13	8	-
Aricidea wassi	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Armandia brevis	-	-	-	1	-	-	2	3	2	1	-	1	-	-	-	-	-	-	-	-	3
Asabellides lineata	-	-	-	-	-	-	1	2	1	1	-	2	-	-	-	-	-	-	2	-	-
Asteroidea	-	1	-	-	-	-	-	-	1	-	-	1	-	-	-	1	1	2	-	-	-
Astyris gausapata	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	2	-
Atylus sp	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	1	2	-	-	-
Axinopsida serricata	1	8	1	2	-	8	-	-	1	21	24	21	15	18	19	-	-	-	45	48	25
Balanidae	-	-	-	-	-	-	-	-	-	-	-	-	12	-	2	-	-	-	-	-	-
Balcis thersites	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barantolla sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia benedeni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia discreta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barentsia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bathymedon pumilus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Betapista dekkerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bipalponephtys cornuta	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2	-	-
Bispira elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boccardia pugettensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boltenia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowerbankia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brachyura	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bruzelia tuberculata	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buskia nitens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	1	-	-	-
Byblis millsi	-	-	-	-	-	-	6	3	10	2	7	5	-	1	-	-	-	-	6	9	2
Calcarea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calliopiidae	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Calocarides spinulicauda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campylaspis hartae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campylaspis rubromaculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer gracilis	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1	-	-
Cancer oregonensis	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer productus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Candidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitella capitata cmplx	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caprella kennerlyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caprella mendax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Caprellidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cardiomya pectinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Caulleriella pacifica	-	-	-	-	-	-	8	5	3	1	3	2	-	-	-	-	-	-	6	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Armandia brevis	-	-	-	2	1	-
Asabellides lineata	1	-	-	40	52	36
Asteroidea	-	1	2	1	4	1
Astyris gausapata	3	5	1	-	-	-
Atylus sp	-	-	-	1	-	-
Axinopsida serricata	8	21	6	16	21	3
Balanidae	-	-	-	-	-	-
Balcis thersites	-	1	-	-	-	-
Barantolla sp	-	-	-	1	-	-
Barentsia benedeni	-	-	-	-	-	-
Barentsia discreta	-	-	-	-	-	-
Barentsia gracilis	-	-	-	-	-	-
Bathymedon pumilus	-	-	-	-	-	-
Betapista dekkerae	-	-	-	-	-	-
Bipalponephtys cornuta	-	-	-	-	1	-
Bispira elegans	-	-	-	-	1	1
Boccardia pugettensis	-	-	-	-	-	-
Boltenia sp	-	-	-	-	-	-
Bowerbankia gracilis	-	-	-	-	-	-
Brachyura	-	-	-	-	-	-
Bruzelia tuberculata	-	-	-	-	-	-
Buskia nitens	-	-	-	-	-	-
Byblis millsi	9	10	7	19	26	18
Calcarea	-	-	-	-	-	-
Calliopiidae	-	-	-	-	-	-
Calocarides spinulicauda	-	-	-	-	-	-
Campylaspis hartae	1	-	-	-	1	-
Campylaspis rubromaculata	-	-	-	1	-	-
Cancer gracilis	-	-	1	-	-	-
Cancer oregonensis	-	-	-	-	3	3
Cancer productus	-	-	-	-	-	-
Cancer sp	-	-	-	-	-	-
Candidae	-	-	-	-	-	-
Capitella capitata cmplx	-	-	-	-	-	-
Caprella kennerlyi	-	-	-	1	-	-
Caprella mendax	-	-	-	-	-	-
Caprellidae Juvenile	-	-	-	-	-	-
Cardiomya pectinata	-	-	-	-	-	-
Caulleriella pacifica	3	1	7	22	19	6

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Celleporella hyalina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Celleporina robertsoniae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceriantharia	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetoderma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	9	5	-	-	-
Chaetozone sp	3	-	1	9	3	7	2	6	4	8	6	3	-	1	2	-	-	-	8	12	2
Chaperiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheilopora praelonga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cheirimedeia macrodactyla	-	1	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-
Cheirimedeia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chelyosoma columbianum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chiridota sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chitinopoma serrula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chone duneri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Chone magna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Circeis spirillum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cirratulus sp	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	1	-	-	-
Clinocardium nuttallii	4	10	4	1	-	-	-	1	-	1	1	1	1	-	1	-	-	-	1	-	-
Clinocardium sp Juvenile	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clytia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coboldus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compsomyax subdiaphana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cossura pygodactylata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Crangon alaskensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crangon sp	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	2	1
Crangonidae	-	-	-	-	-	-	1	-	4	1	-	3	-	-	-	2	3	1	-	-	-
Crassicorophium crassicorne	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Crepipatella dorsata	-	-	-	-	-	-	-	1	8	-	-	1	-	3	-	-	-	-	-	-	-
Cryptonatica affinis	-	-	-	-	1	-	-	1	3	-	-	1	-	-	-	-	-	-	-	-	1
Cyclocardia ventricosa	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Cyclopoida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclostomata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclostremella concordia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cylichna alba	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Cylichna attonsa	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	3	4	4	1	-	-
Cylindroleberididae	-	2	1	1	-	1	-	-	-	2	4	1	2	-	2	-	-	-	-	1	-
Demonax sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dendrobeania sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Desdimelita desdichada	-	-	-	1	-	1	11	10	24	1	2	6	1	-	-	-	1	4	3	1	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Celleporella hyalina	-	-	-	-	-	-
Celleporina robertsoniae	-	-	-	-	-	-
Ceriantharia	-	-	-	-	-	-
Chaetoderma sp	-	-	-	-	-	-
Chaetozone sp	7	8	5	6	5	2
Chaperiidae	-	-	-	-	-	-
Cheilopora praelonga	-	-	-	-	-	-
Cheirimedeia macrodactyla	-	1	-	-	-	-
Cheirimedeia sp	-	-	-	-	-	-
Chelyosoma columbianum	-	-	-	2	-	-
Chiridota sp	-	-	-	2	2	2
Chitinopoma serrula	-	-	-	1	-	1
Chone duneri	-	-	-	-	-	-
Chone magna	-	-	-	-	-	-
Circeis spirillum	-	-	-	-	-	-
Cirratulus sp	1	-	4	1	1	-
Clinocardium nuttallii	-	1	1	-	-	-
Clinocardium sp Juvenile	-	-	-	-	2	-
Clytia sp	-	-	-	-	-	-
Coboldus sp	-	-	-	-	-	-
Compsomyax subdiaphana	-	-	-	-	-	-
Cossura pygodactylata	-	-	-	-	-	-
Crangon alaskensis	-	-	-	-	-	-
Crangon sp	-	-	-	-	-	-
Crangonidae	-	-	-	-	-	-
Crassicorophium crassicorne	1	6	1	-	-	-
Crepipatella dorsata	2	-	-	2	2	2
Cryptonatica affinis	1	-	-	7	7	7
Cyclocardia ventricosa	-	-	-	-	-	-
Cyclopoida	-	-	-	-	-	-
Cyclostomata	-	-	-	-	-	-
Cyclostremella concordia	-	-	-	-	-	-
Cylichna alba	-	-	-	-	-	-
Cylichna attonsa	-	-	-	2	1	-
Cylindroleberididae	2	1	-	1	2	2
Demonax sp	-	-	-	1	-	-
Dendrobeania sp	-	-	-	-	-	-
Desdimelita desdichada	5	9	5	6	7	2

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Diaperoecia claviformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diastylis pellucida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diastylis santamariensis	-	-	-	-	-	1	1	-	2	-	1	-	-	-	-	-	-	-	-	-	-
Diopatra ornata	-	1	-	-	-	-	5	3	1	1	2	-	1	2	-	-	3	1	3	-	-
Dipolydora brachycephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dipolydora cardalia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dipolydora socialis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Dorvillea (Schistomeringos) longicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dorvilleidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drilonereis longa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dulichia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dyopedos sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinoidea	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Edwardsia sipunculoides	-	-	-	-	1	1	2	2	1	-	-	-	-	1	-	-	-	-	-	-	-
Elassochirus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ennucula tenuis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eobrolgus chumashi	-	-	-	4	-	3	6	3	4	2	1	5	-	-	-	1	1	1	-	1	-
Eobrolgus spinosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eohaustorius washingtonianus	4	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epigamia alexandri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epitonium sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ericthonius cf *brasiliensis*	-	-	-	2	-	3	2	-	-	-	-	1	-	-	-	-	-	1	-	-	-
Eteone sp	-	-	-	-	-	-	4	1	-	-	-	1	-	-	-	1	-	-	1	-	-
Eualus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Eualus subtilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euclymeninae	2	15	4	14	7	13	11	29	31	1	5	2	1	-	2	1	2	-	3	1	-
Eudistylia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eudorella pacifica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eulalia californiensis	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Eulalia quadrioculata	-	-	-	-	1	-	4	4	7	-	-	4	-	-	-	-	-	-	-	-	-
Eulalia sp N1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eumida longicornuta	-	-	-	1	-	-	1	2	1	-	1	-	-	-	-	-	1	-	-	-	-
Eunoe sp	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Eupentacta sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euphilomedes carcharodonta	179	222	217	63	29	45	30	48	39	119	40	50	186	185	126	-	14	42	34	26	56
Euphysa ruthae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euphysa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Diaperoecia claviformis	-	-	-	-	-	-
Diastylis pellucida	-	-	-	-	-	-
Diastylis santamariensis	-	-	-	6	3	3
Diopatra ornata	1	-	1	2	4	5
Dipolydora brachycephala	-	-	-	-	-	-
Dipolydora cardalia	-	-	-	-	-	-
Dipolydora socialis	-	-	-	1	2	-
Dorvillea (Schistomeringos) longicornis	-	-	-	-	-	-
Dorvilleidae Juvenile	-	-	-	-	-	-
Drilonereis longa	-	-	-	-	-	-
Dulichia sp	-	-	-	2	1	-
Dyopedos sp	-	-	-	-	-	-
Echinoidea	-	-	-	1	-	-
Edwardsia sipunculoides	-	-	1	-	-	-
Elassochirus sp	-	-	-	-	-	1
Ennucula tenuis	-	-	-	-	-	-
Eobrolgus chumashi	-	-	-	22	33	33
Eobrolgus spinosus	-	-	-	-	-	-
Eohaustorius washingtonianus	-	-	-	-	-	-
Epigamia alexandri	-	-	-	-	-	-
Epitonium sp	-	-	-	-	-	-
Ericthonius cf *brasiliensis*	-	2	3	-	11	-
Eteone sp	-	-	-	-	-	-
Eualus sp	-	-	-	11	5	27
Eualus subtilis	-	1	6	4	-	30
Euclymeninae	1	4	1	15	8	4
Eudistylia sp	-	-	-	-	-	-
Eudorella pacifica	-	-	-	1	-	1
Eulalia californiensis	-	-	-	1	2	-
Eulalia quadrioculata	-	1	1	-	1	3
Eulalia sp N1	-	-	-	-	-	1
Eumida longicornuta	3	3	4	4	2	2
Eunoe sp	-	-	-	1	-	-
Eupentacta sp	-	-	-	-	-	-
Euphilomedes carcharodonta	107	65	106	36	35	11
Euphysa ruthae	-	-	-	-	-	-
Euphysa sp	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Eupolymnia heterobranchia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira lewisii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Euspira pallida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis blomstrandi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis habei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eusyllis lamelligera	-	-	-	-	-	-	3	1	6	-	-	-	1	-	-	-	-	-	-	-	-
Exogone dwisula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exogone lourei	-	-	-	-	-	-	-	5	-	-	1	2	-	-	-	-	-	-	-	-	-
Eyakia robusta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fabia subquadrata	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flabelligera affinis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Foxiphalus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galathowenia oculata	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1
Gammaropsis ellisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gammaropsis sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gammaropsis thompsoni	-	-	-	3	1	-	6	4	11	-	2	7	1	1	-	-	-	6	2	-	-
Gastropteron pacificum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gattyana cirrhosa	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-
Gattyana treadwelli	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Glycera sp	1	-	-	3	-	1	28	11	23	2	-	3	2	1	-	1	-	-	4	1	1
Glycinde armigera	3	4	2	12	2	4	11	7	6	3	4	4	8	3	8	3	5	5	2	5	3
Glycinde picta	-	1	-	-	-	3	1	-	-	-	2	-	-	-	-	-	-	-	1	1	-
Glycinde Juvenile	-	-	-	-	2	-	1	-	-	5	2	2	-	-	-	-	-	-	2	1	1
Golfingiidae	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	1
Goniada brunnea	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	3	1	1	-	1	-
Goniada maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Halcampa sp	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	1	1
Haliophasma geminatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-
Haminoea vesicula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe extenuata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe imbricata	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
Harmothoe multisetosa	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Harpacticoida	-	-	-	-	1	-	32	35	50	1	-	-	-	-	-	-	-	-	-	1	-
Hemipodia simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptacarpus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptacarpus stimpsoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hermundura fauveli	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Hesionidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heteromysis odontops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Eupolymnia heterobranchia	-	-	-	-	-	-
Euspira lewisii	-	-	-	-	-	-
Euspira pallida	-	-	-	-	-	-
Eusyllis blomstrandi	-	-	-	1	-	-
Eusyllis habei	-	-	-	-	-	-
Eusyllis lamelligera	-	-	-	7	9	6
Exogone dwisula	-	-	-	2	-	-
Exogone lourei	1	-	1	-	-	-
Eyakia robusta	-	-	-	-	-	1
Fabia subquadrata	-	-	-	-	-	-
Flabelligera affinis	-	-	-	-	-	-
Foxiphalus sp	-	-	-	-	-	-
Galathowenia oculata	-	-	-	-	-	-
Gammaropsis ellisi	-	2	3	1	2	2
Gammaropsis sp Juvenile	-	5	-	-	-	-
Gammaropsis thompsoni	-	2	4	3	1	2
Gastropteron pacificum	-	-	-	-	-	-
Gattyana cirrhosa	-	-	2	1	2	1
Gattyana treadwelli	-	-	-	-	-	-
Glycera sp	2	2	3	20	20	10
Glycinde armigera	2	3	3	9	8	5
Glycinde picta	-	-	-	4	2	-
Glycinde Juvenile	-	-	1	-	-	-
Golfingiidae	1	-	-	-	-	-
Goniada brunnea	-	-	-	-	-	-
Goniada maculata	-	1	-	-	-	-
Halcampa sp	-	-	-	-	-	3
Haliophasma geminatum	1	-	-	-	-	-
Haminoea vesicula	-	-	-	-	-	-
Harmothoe extenuata	-	-	-	-	-	-
Harmothoe imbricata	-	-	2	8	3	3
Harmothoe multisetosa	-	3	5	4	6	7
Harpacticoida	-	-	-	-	-	-
Hemipodia simplex	-	-	-	-	-	-
Heptacarpus sp	-	-	-	-	2	-
Heptacarpus stimpsoni	-	-	-	-	-	-
Hermundura fauveli	-	-	-	-	-	-
Hesionidae Juvenile	-	-	-	-	-	-
Heteromysis odontops	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Heterophoxus conlanae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heterophoxus ellisi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heterophoxus sp Juvenile	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
Hiatella arctica	-	-	-	34	10	19	5	25	19	5	5	5	2	-	1	1	-	-	3	-	-
Hima mendica	-	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-	-	-	1	1	2
Hippolytidae	-	-	-	-	-	-	-	7	-	-	1	8	-	-	-	-	-	-	1	-	-
Hippomedon sp	-	-	-	-	-	-	3	1	1	1	1	1	-	-	3	-	1	4	6	7	4
Hirudinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoplonemertea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Humilaria kennerleyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydractinia sp	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Idanthyrsus saxicavus	-	-	-	2	-	-	-	3	3	-	-	-	1	-	-	1	-	-	-	-	-
Idoteidae	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ischnochitonidae	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kellia suborbicularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kroyera carinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kurtzia arteaga	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
Lacuna vincta	-	-	-	2	-	-	-	-	-	-	-	6	-	3	-	-	-	-	2	-	-
Lanassa venusta	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-	-	1	-
Laonice sp	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-
Laonome kroeyeri	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Laqueidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leitoscoloplos pugettensis	-	-	-	-	1	-	1	-	-	3	3	4	-	-	1	2	-	-	8	4	7
Lepidasthenia longicirrata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidepecreum gurjanovae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidonotus spiculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptochelia savignyi	-	1	-	17	9	11	13	9	23	16	30	21	8	2	3	1	3	5	15	4	5
Leptosynapta sp	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Leucilla nuttingi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leukoma staminea	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levinsenia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lineidae	-	-	1	4	1	1	10	15	23	4	4	1	-	-	-	1	-	1	-	1	1
Lirobittium eschrichtii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lirobittium munitum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2
Lirularia lirulata	-	5	3	2	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-
Lophopanopeus bellus	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Lottia sp	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lucinoma annulatum	-	-	-	-	-	-	-	-	-	1	2	2	1	2	3	-	-	-	-	1	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Heterophoxus conlanae	2	-	2	8	23	25
Heterophoxus ellisi	1	-	-	-	-	-
Heterophoxus sp Juvenile	-	-	-	-	-	-
Hiatella arctica	1	4	2	8	11	3
Hima mendica	-	2	-	-	-	-
Hippolytidae	1	-	6	-	3	-
Hippomedon sp	8	24	1	2	1	-
Hirudinea	-	-	-	-	-	-
Hoplonemertea	-	-	-	-	-	-
Humilaria kennerleyi	-	-	-	1	-	-
Hydractinia sp	-	-	-	-	-	-
Idanthyrsus saxicavus	-	-	-	4	1	2
Idoteidae	-	-	-	-	-	-
Ischnochitonidae	-	-	-	-	-	-
Kellia suborbicularis	-	-	-	-	-	-
Kroyera carinata	-	-	-	-	-	-
Kurtzia arteaga	-	-	1	-	-	-
Lacuna vincta	-	-	-	-	2	-
Lanassa venusta	-	-	-	-	1	-
Laonice sp	3	-	3	-	2	2
Laonome kroeyeri	-	-	-	-	-	-
Laqueidae	-	-	-	2	2	-
Leitoscoloplos pugettensis	5	2	4	8	8	3
Lepidasthenia longicirrata	-	-	-	-	-	-
Lepidepecreum gurjanovae	-	-	-	1	-	3
Lepidonotus spiculus	-	-	-	-	-	-
Leptochelia savignyi	22	10	39	9	21	16
Leptosynapta sp	-	-	-	2	1	-
Leucilla nuttingi	-	-	-	2	-	-
Leukoma staminea	-	-	-	-	-	-
Levinsenia sp	-	-	-	-	-	-
Lineidae	2	1	2	5	11	4
Lirobittium eschrichtii	-	-	-	-	-	-
Lirobittium munitum	-	-	-	-	-	-
Lirularia lirulata	-	-	-	-	-	-
Lophopanopeus bellus	-	-	1	1	-	4
Lottia sp	-	-	-	-	-	-
Lucinoma annulatum	2	-	-	1	3	2

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Lumbrineridae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lumbrineris californiensis	-	-	-	-	-	-	3	3	2	3	5	4	-	-	-	2	1	1	7	-	1
Lumbrineris latreilli	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	1	-	-	-
Lyonsia californica	1	7	2	2	-	1	9	12	20	7	5	9	10	16	2	2	1	-	2	-	2
Lysippe labiata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma carlottensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macoma golikovi	-	-	-	-	-	-	1	3	7	-	-	5	-	-	-	-	-	-	3	1	-
Macoma nasuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Macoma sp Juvenile	-	-	-	2	-	-	1	-	2	-	1	2	3	-	1	-	-	-	-	1	1
Macoma yoldiformis	-	-	-	1	-	-	-	-	1	2	1	7	-	2	3	4	-	-	8	5	2
Mactridae	8	13	9	9	1	3	-	-	-	-	-	-	7	10	1	-	-	-	1	-	-
Magelona longicornis	-	-	-	1	-	-	1	1	1	-	3	-	1	1	-	-	-	-	4	1	1
Magelona sacculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magelona sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maldanidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella bansei	-	-	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella macginitiei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malmgreniella nigralba	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Margarites pupillus	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	2	-	-
Mediomastus californiensis	-	-	1	-	1	-	20	4	18	1	3	1	-	3	6	1	1	-	13	4	3
Megalomma splendida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Megamoera subtener	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Megasurcula carpenteriana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melanochlamys diomedea	1	3	1	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melinna oculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melitidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melphidippa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melphisana bola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Membranipora membranacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mesochaetopterus taylori	-	-	-	-	-	-	9	3	6	-	-	-	-	-	-	-	-	-	-	-	-
Mesocrangon munitella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Metacaprella kennerlyi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metaphoxus frequens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microphthalmus sp	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micropodarke dubia	-	-	1	-	5	-	109	84	172	1	1	-	-	-	2	1	1	-	11	-	-
Modiolus sp	-	-	-	-	-	1	6	2	6	2	2	-	-	-	-	1	1	-	-	-	-
Molgula sp	-	-	-	-	-	-	-	3	11	-	-	-	-	-	-	-	-	-	-	-	-
Monocorophium sp	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Lumbrineridae Juvenile	1	-	-	-	-	-
Lumbrineris californiensis	13	4	5	22	28	23
Lumbrineris latreilli	-	-	-	-	-	-
Lyonsia californica	11	3	7	14	13	6
Lysippe labiata	-	-	-	3	2	-
Macoma carlottensis	2	-	-	-	-	-
Macoma golikovi	5	1	5	6	4	10
Macoma nasuta	-	-	-	-	-	-
Macoma sp Juvenile	-	4	12	1	4	1
Macoma yoldiformis	2	7	4	5	2	4
Mactridae	-	-	-	-	-	-
Magelona longicornis	3	1	-	4	2	2
Magelona sacculata	-	-	-	-	-	-
Magelona sp Juvenile	-	-	-	-	-	-
Maldanidae Juvenile	-	-	-	-	-	-
Malmgreniella bansei	-	-	-	1	1	-
Malmgreniella macginitiei	-	-	-	-	-	-
Malmgreniella nigralba	-	-	-	-	-	1
Margarites pupillus	1	3	4	2	-	-
Mediomastus californiensis	4	3	12	33	29	15
Megalomma splendida	-	-	-	-	2	-
Megamoera subtener	-	-	-	4	-	-
Megasurcula carpenteriana	-	-	-	-	-	-
Melanochlamys diomedea	-	-	-	-	-	-
Melinna oculata	-	-	-	-	-	-
Melitidae Juvenile	-	-	-	-	-	-
Melphidippa sp	-	-	-	4	1	-
Melphisana bola	1	-	1	-	1	1
Membranipora membranacea	-	-	-	-	-	-
Mesochaetopterus taylori	1	-	1	-	-	-
Mesocrangon munitella	1	-	-	5	7	5
Metacaprella kennerlyi	-	-	-	-	-	-
Metaphoxus frequens	-	-	-	-	-	-
Microphthalmus sp	-	-	-	-	-	-
Micropodarke dubia	5	1	22	69	54	28
Modiolus sp	-	1	3	-	-	-
Molgula sp	-	-	-	3	-	-
Monocorophium sp	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Monticellina serratiseta	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-
Monticellina sp N1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Munnogonium tillerae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus discors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus glacialis	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Musculus niger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musculus sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mya arenaria	-	1	-	-	-	-	-	1	-	1	-	-	2	1	-	-	-	-	-	-	-
Mya sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Myosoma spinosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mytilus sp	-	-	-	5	6	4	-	-	-	-	-	3	2	1	-	-	-	-	-	-	-
Myxicola infundibulum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neaeromya rugifera	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Nebalia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Nematoda	-	-	-	1	-	-	6	1	6	1	1	2	-	-	-	1	-	-	2	-	-
Nemertea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemocardium centifilosum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neosabellaria cementarium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Neotrypaea sp	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2
Nephasoma minutum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nephtys sp	3	-	1	-	6	3	4	3	6	5	9	7	1	-	5	3	4	4	11	7	5
Nereididae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nereis sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nicolea zostericola	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Nicomache lumbricalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nicomache personata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Notomastus hemipodus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Notomastus latericeus	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
Notomastus lineatus	-	-	-	-	-	-	-	1	1	2	4	2	3	-	6	2	1	-	1	1	1
Nucella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nudibranchia	-	-	-	2	1	1	-	1	5	-	-	1	-	-	-	-	-	-	6	-	-
Nutricola lordi	3	7	1	-	-	3	-	-	2	-	-	-	2	-	1	-	-	-	2	1	1
Nutricola tantilla	-	13	1	-	-	-	-	3	-	1	-	-	1	2	2	-	-	-	-	-	-
Nymphon pixellae	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Nynantheae	-	-	-	-	-	-	-	1	1	-	1	-	-	-	-	1	1	-	2	-	-
Odontosyllis phosphorea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Odostomia sp	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-
Oerstedia dorsalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oligochaeta	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	2	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Monticellina serratiseta	-	-	-	-	-	-
Monticellina sp N1	-	-	-	1	-	-
Munnogonium tillerae	-	-	-	-	-	-
Musculus discors	-	-	-	-	-	-
Musculus glacialis	-	-	-	-	1	-
Musculus niger	-	-	-	-	-	-
Musculus sp Juvenile	-	-	-	-	-	-
Mya arenaria	-	-	-	1	-	-
Mya sp Juvenile	-	-	-	-	-	-
Myosoma spinosa	-	-	-	-	-	-
Mytilus sp	-	-	-	-	-	-
Myxicola infundibulum	-	-	-	5	2	1
Neaeromya rugifera	-	-	-	-	2	2
Nebalia sp	1	1	-	1	-	-
Nematoda	3	5	4	3	3	-
Nemertea	-	-	-	-	-	-
Nemocardium centifilosum	-	-	-	-	-	-
Neosabellaria cementarium	-	-	-	1	-	-
Neotrypaea sp	1	1	-	-	-	-
Nephasoma minutum	-	-	-	-	-	-
Nephtys sp	5	4	14	5	3	3
Nereididae Juvenile	-	-	-	-	-	-
Nereis sp	-	-	-	1	-	-
Nicolea zostericola	-	1	1	-	1	1
Nicomache lumbricalis	-	-	-	-	-	-
Nicomache personata	-	-	-	-	-	-
Notomastus hemipodus	-	-	-	2	1	-
Notomastus latericeus	-	-	-	3	-	-
Notomastus lineatus	2	4	1	3	-	-
Nucella sp	-	-	-	-	-	-
Nudibranchia	-	-	-	2	1	-
Nutricola lordi	4	4	1	1	5	1
Nutricola tantilla	-	-	-	-	-	-
Nymphon pixellae	1	-	-	-	-	-
Nynantheae	-	1	-	-	-	-
Odontosyllis phosphorea	-	1	-	-	1	-
Odostomia sp	-	1	-	2	-	-
Oerstedia dorsalis	-	-	-	-	-	-
Oligochaeta	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Olivella (Callianax) baetica	-	1	2	3	1	2	4	1	1	-	1	9	-	-	2	2	-	-	7	8	3
Onuphidae Juvenile	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	1
Onuphis elegans	-	1	-	-	-	2	3	4	8	-	-	-	-	1	-	4	2	1	1	-	1
Onuphis iridescens	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-
Opercularella lacerata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelia limacina	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelina acuminata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Ophiodermella sp	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Ophiodromus pugettensis	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophiurida	-	2	-	-	-	-	1	1	-	-	-	-	2	2	4	-	-	-	5	-	1
Opisa tridentata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	1	-
Orchomene decipiens	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	4	2	-
Orchomene pacificus	-	1	1	1	-	-	-	-	-	1	1	-	3	-	4	1	-	1	1	-	1
Orchomene pinguis	9	3	11	33	10	20	-	-	8	4	1	-	-	-	-	-	1	-	-	-	1
Oregonia gracilis	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Owenia sp	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Pachynus barnardi	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Pacifoculodes sp	-	-	-	-	1	-	1	-	-	-	-	1	-	1	1	1	4	5	9	3	3
Pagurus sp	-	-	-	-	-	1	-	1	3	3	1	6	-	3	1	1	3	-	3	-	3
Paleanotus bellis	-	-	-	1	8	3	10	13	6	2	4	-	4	-	1	-	-	-	1	-	-
Paleonemertea	3	-	8	4	4	6	22	8	17	1	5	4	4	3	10	3	14	5	2	2	1
Pandalus sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pandora bilirata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Pandora filosa	-	-	-	-	-	-	-	-	-	-	1	-	2	-	3	2	-	-	2	-	3
Panopea abrupta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paradialychone bimaculata	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Paradulichia typica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parametaphoxus quaylei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paranaitis polynoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parandalia fauveli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parapleustinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paraprionospio alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pardalisca tenuipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parvilucina tenuisculpta	27	269	25	1	-	3	5	8	1	125	135	104	261	248	297	1	-	3	100	118	88
Pectinaria granulata	-	4	1	3	2	-	19	7	16	5	5	15	1	6	1	1	-	-	19	5	-
Pectinidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentamera sp	-	1	-	-	-	-	31	10	45	1	8	10	-	-	1	-	1	1	1	1	1
Petaloproctus tenuis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pherusa plumosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Olivella (Callianax) baetica	1	-	-	-	-	-
Onuphidae Juvenile	3	-	3	-	2	-
Onuphis elegans	2	1	1	5	2	2
Onuphis iridescens	-	1	-	-	-	-
Opercularella lacerata	-	-	-	-	-	-
Ophelia limacina	-	-	-	-	-	-
Ophelina acuminata	-	1	-	-	-	-
Ophiodermella sp	-	-	-	-	-	-
Ophiodromus pugettensis	-	-	3	1	-	1
Ophiurida	8	3	2	5	3	11
Opisa tridentata	-	-	-	1	1	-
Orchomene decipiens	-	-	2	19	11	3
Orchomene pacificus	2	3	1	-	-	-
Orchomene pinguis	-	-	-	-	-	-
Oregonia gracilis	1	-	3	-	-	4
Owenia sp	-	-	-	2	1	2
Pachynus barnardi	-	-	-	-	-	-
Pacifoculodes sp	1	7	2	5	-	2
Pagurus sp	2	-	1	3	2	2
Paleanotus bellis	1	-	1	22	15	7
Paleonemertea	2	2	1	2	6	1
Pandalus sp	-	-	-	-	-	-
Pandora bilirata	-	-	-	-	-	-
Pandora filosa	1	4	-	-	-	-
Panopea abrupta	-	-	-	-	-	-
Paradialychone bimaculata	-	-	-	-	-	-
Paradulichia typica	-	-	-	-	-	-
Parametaphoxus quaylei	-	-	-	-	-	3
Paranaitis polynoides	-	1	-	-	-	-
Parandalia fauveli	-	-	-	-	-	-
Parapleustinae	-	-	-	2	-	5
Paraprionospio alata	-	-	-	-	-	-
Pardalisca tenuipes	-	-	-	3	2	1
Parvilucina tenuisculpta	253	252	149	238	158	154
Pectinaria granulata	12	9	26	69	64	78
Pectinidae	-	-	-	1	-	2
Pentamera sp	8	3	8	87	95	48
Petaloproctus tenuis	-	-	-	-	-	-
Pherusa plumosa	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Pholoe minuta	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-
Pholoe sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pholoides asperus	-	-	-	-	-	-	11	11	13	1	-	3	1	-	-	-	-	-	2	-	-
Phoronida	-	1	-	4	-	3	7	2	7	4	4	1	1	-	-	-	1	2	3	2	3
Photis sp	1	1	-	20	9	13	3	-	1	2	-	-	2	1	1	-	2	-	-	-	-
Phyllochaetopterus prolifica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce cuspidata	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce groenlandica	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-
Phyllodoce hartmanae	-	1	2	-	-	3	2	1	1	2	1	2	-	-	1	1	1	-	-	3	-
Phyllodoce longipes	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Phyllodoce maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodoce sp Juvenile	-	-	1	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Phyllodoce williamsi	-	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodocidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Phylo felix	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pilargis maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinnixa sp	-	-	-	-	-	-	4	1	1	2	-	-	1	-	-	-	-	1	6	-	-
Pinnotheridae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pionosyllis uraga	-	-	-	-	-	-	-	1	2	-	-	3	-	-	-	-	-	-	-	-	-
Piscicolidae	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pista elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pista estevanica	-	-	-	-	-	-	1	1	1	-	1	-	-	1	1	1	2	1	3	1	3
Pista sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Platynereis bicanaliculata	-	-	-	4	11	2	5	8	2	7	7	26	2	1	-	-	-	2	14	-	-
Pleurogonium rubicundum	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleusirus secorrus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleusymtes sp	1	-	-	5	-	1	9	7	13	1	-	2	2	-	1	-	-	1	1	-	-
Podarkeopsis glabrus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Podocerus cristatus	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Podocopida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pododesmus macrochisma	-	-	-	23	12	-	2	-	2	-	3	-	-	-	-	-	-	-	6	-	-
Polycirrus sp cmplx	-	2	-	3	1	2	2	10	27	-	-	2	4	5	3	6	7	7	3	1	6
Polycladida	-	-	-	1	-	-	2	-	5	-	-	4	-	-	-	-	-	-	1	-	-
Polydora cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polygireulima rutila	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynoidae	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Polynoidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontogeneia intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontogeneia rostrata	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Pholoe minuta	-	-	-	-	2	1
Pholoe sp	-	-	-	-	-	-
Pholoides asperus	20	7	19	4	6	3
Phoronida	-	2	2	4	-	2
Photis sp	1	3	1	-	-	2
Phyllochaetopterus prolifica	-	-	-	-	-	-
Phyllodoce cuspidata	-	-	-	-	-	-
Phyllodoce groenlandica	-	-	-	1	1	1
Phyllodoce hartmanae	1	1	-	1	-	-
Phyllodoce longipes	-	-	-	7	3	2
Phyllodoce maculata	-	-	-	-	-	-
Phyllodoce sp Juvenile	-	-	-	-	-	-
Phyllodoce williamsi	-	-	-	6	-	-
Phyllodocidae Juvenile	-	-	-	1	-	-
Phylo felix	-	-	-	-	-	-
Pilargis maculata	-	-	-	-	-	-
Pinnixa sp	3	1	9	24	28	4
Pinnotheridae Juvenile	-	-	-	-	-	-
Pionosyllis uraga	2	-	4	7	2	2
Piscicolidae	-	-	-	-	-	-
Pista elongata	1	-	1	1	1	2
Pista estevanica	1	-	3	1	-	2
Pista sp Juvenile	-	-	-	-	-	1
Platynereis bicanaliculata	2	7	20	8	7	15
Pleurogonium rubicundum	-	-	-	-	-	-
Pleusirus secorrus	-	-	-	-	-	1
Pleusymtes sp	2	3	1	-	2	-
Podarkeopsis glabrus	-	-	-	-	1	-
Podocerus cristatus	-	-	-	-	-	-
Podocopida	-	-	-	-	-	-
Pododesmus macrochisma	-	2	2	4	7	8
Polycirrus sp cmplx	-	3	4	14	4	9
Polycladida	-	1	-	8	9	3
Polydora cornuta	-	-	-	-	-	-
Polygireulima rutila	-	-	-	-	1	-
Polynoidae	-	-	-	-	-	1
Polynoidae Juvenile	-	-	-	-	-	-
Pontogeneia intermedia	-	-	-	-	-	-
Pontogeneia rostrata	-	-	-	-	-	1

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Porcellanidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Priapulidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Prionospio lighti	-	-	-	-	-	-	7	4	-	-	-	-	-	-	-	-	-	-	13	-	-
Prionospio multibranchiata	-	-	-	-	-	-	2	-	7	-	-	-	-	-	-	-	-	-	-	-	-
Prionospio steenstrupi	5	3	2	13	31	20	567	232	296	22	20	14	7	2	3	6	4	2	29	21	21
Proceraea sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protodorvillea gracilis	-	-	-	-	-	-	53	22	31	-	1	-	-	-	-	-	-	-	-	-	-
Protomedeia grandimana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protomedeia prudens	12	14	7	31	6	32	5	13	4	27	24	14	6	9	5	22	17	18	15	20	26
Pseudochitinopoma occidentalis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ptilosarcus gurneyi	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pugettia gracilis	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Puncturella sp	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Pygospio elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retusa sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhabdocoela	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhachotropis sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhepoxynius abronius	25	34	24	4	1	7	-	-	-	22	42	23	40	28	59	23	12	38	35	40	44
Rhepoxynius daboius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rochefortia tumida	3	7	5	1	1	3	35	16	31	9	13	13	9	6	10	2	6	4	11	4	2
Rutiderma lomae	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Saxidomus gigantea	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Scalibregma californicum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Schistocomus hiltoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scionella japonica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scoletoma luti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scoloplos sp	-	1	4	1	3	1	1	-	-	-	1	-	1	1	4	-	-	1	-	-	-
Scoloura phillipsi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Serpula vermicularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sertularella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sigalion spinosus	-	-	3	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	1	1
Sige montereyensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sipuncula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smittina landsborovii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solamen columbianum	-	-	-	-	1	-	1	-	-	-	1	-	1	-	-	1	-	1	-	-	-
Solariella peramabilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solariella sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Porcellanidae	-	-	-	-	-	-
Priapulidae	-	-	-	-	-	-
Prionospio lighti	8	3	10	8	3	-
Prionospio multibranchiata	1	-	3	28	19	10
Prionospio steenstrupi	22	18	31	396	508	273
Proceraea sp	-	-	-	-	-	-
Protodorvillea gracilis	-	-	1	20	12	10
Protomedeia grandimana	1	-	-	-	-	-
Protomedeia prudens	18	29	10	1	-	-
Pseudochitinopoma occidentalis	-	-	-	-	-	-
Ptilosarcus gurneyi	-	-	-	1	-	-
Pugettia gracilis	-	-	-	5	2	-
Puncturella sp	-	-	-	-	-	-
Pygospio elegans	-	-	-	-	-	-
Retusa sp	-	-	-	1	-	-
Rhabdocoela	-	-	-	-	-	-
Rhachotropis sp	-	-	-	-	-	-
Rhepoxynius abronius	47	53	30	-	-	-
Rhepoxynius daboius	-	-	-	-	-	-
Rochefortia tumida	23	21	19	19	60	22
Rutiderma lomae	-	1	-	-	2	-
Saxidomus gigantea	-	-	1	-	-	-
Scalibregma californicum	-	-	-	1	1	-
Schistocomus hiltoni	-	-	-	-	-	-
Scionella japonica	1	1	-	1	1	1
Scoletoma luti	-	1	-	-	-	-
Scoloplos sp	-	2	1	-	-	-
Scoloura phillipsi	-	-	-	-	-	-
Serpula vermicularis	-	-	-	1	-	-
Sertularella sp	-	-	-	-	-	-
Sigalion spinosus	1	-	-	-	-	-
Sige montereyensis	-	-	-	-	-	-
Sipuncula	-	-	-	-	-	-
Smittina landsborovii	-	-	-	P	-	-
Solamen columbianum	1	-	-	-	1	1
Solariella peramabilis	-	-	-	-	-	-
Solariella sp Juvenile	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Solasteridae	-	-	-	-	-	-	3	-	4	-	-	1	-	-	-	-	-	-	-	-	-
Solen sicarius	-	1	-	-	-	1	-	-	-	-	-	-	7	1	1	-	-	-	-	-	1
Sphaerodoropsis minuta	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerodoropsis sphaerulifer	-	-	-	-	-	-	-	-	-	-	-	1	1	-	3	-	-	-	3	5	-
Sphaerosyllis sp	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Spio filicornis	-	-	-	-	-	-	4	-	2	1	-	-	-	-	-	-	-	-	-	-	-
Spio limicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spiochaetopterus pottsi	-	-	1	1	1	3	2	-	2	2	2	-	-	-	-	3	-	-	1	1	-
Spiophanes berkeleyorum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	-	2
Spiophanes bombyx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spiophanes norrisi	23	11	31	13	5	6	3	19	5	3	4	3	2	2	2	13	18	14	4	1	3
Spirontocaris sp	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Stegopoma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stenothoidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Sthenelais berkeleyi	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
Sthenelais fusca	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-
Sthenelais sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Streblosoma bairdi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styelidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Suberites sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syllis gracilis	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Tellina modesta	2	16	1	1	-	1	1	-	-	2	2	10	5	5	4	-	1	3	2	3	1
Tellina nuculoides	13	2	12	-	-	-	1	-	1	-	1	-	1	-	2	-	5	1	-	-	-
Tenonia priops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Terebella sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terebellidae Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrastemma sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Tharyx parvus	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Thelepus setosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Themiste pyroides	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Themisto pacifica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorlaksonius sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thracia trapezoides	-	3	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-
Thyasira flexuosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thysanocardia nigra	-	-	-	-	-	-	3	4	6	2	1	-	-	-	-	-	-	-	1	-	-
Tiron biocellata	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-
Trichotropis cancellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Solasteridae	4	1	11	26	16	13
Solen sicarius	2	-	-	-	-	-
Sphaerodoropsis minuta	-	-	-	-	-	-
Sphaerodoropsis sphaerulifer	4	2	2	2	1	2
Sphaerosyllis sp	-	-	1	1	-	-
Spio filicornis	-	-	-	1	3	2
Spio limicola	-	-	-	-	-	-
Spiochaetopterus pottsi	1	3	4	-	-	-
Spiophanes berkeleyorum	-	-	-	5	3	-
Spiophanes bombyx	-	-	-	-	-	-
Spiophanes norrisi	5	8	1	15	12	6
Spirontocaris sp	-	-	1	1	4	7
Stegopoma sp	-	-	-	-	-	-
Stenothoidae	-	-	-	-	-	-
Sthenelais berkeleyi	-	-	-	-	1	1
Sthenelais fusca	-	-	1	-	-	-
Sthenelais sp Juvenile	-	-	-	-	-	-
Streblosoma bairdi	-	-	-	-	-	-
Styelidae	-	-	-	-	-	-
Suberites sp	-	-	-	P	-	-
Syllidae Juvenile	-	-	-	-	-	-
Syllis gracilis	-	-	-	-	-	-
Tellina modesta	3	2	2	-	-	-
Tellina nuculoides	-	-	2	-	-	-
Tenonia priops	-	-	-	-	-	-
Terebella sp	-	-	-	-	-	-
Terebellidae Juvenile	-	-	-	-	-	-
Tetrastemma sp	-	-	-	-	-	4
Tharyx parvus	-	-	-	-	-	-
Thelepus setosus	-	-	-	-	-	-
Themiste pyroides	-	-	-	-	-	-
Themisto pacifica	-	-	-	-	-	-
Thorlaksonius sp	-	-	-	-	-	-
Thracia trapezoides	-	-	-	-	-	-
Thyasira flexuosa	-	-	-	-	-	-
Thysanocardia nigra	1	-	-	2	-	-
Tiron biocellata	-	-	-	1	-	-
Trichotropis cancellata	-	-	-	-	-	-

	BWT-BTHC-1			BWT-BTHC-1A			BWT-BTHC-2A			BWT-BTHC-3A			BWT-BTHC-4			BWT-BTHC-4A			BWT-BTHC-6A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Tritella pilimana	-	-	-	1	-	1	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Tubularia sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tubulariidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbonilla sp	-	-	-	-	-	-	2	-	-	-	-	1	-	1	-	-	-	-	1	3	-
Turtonia minuta	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typosyllis caeca	-	-	-	-	-	-	11	11	6	-	1	-	-	-	1	-	-	-	1	1	-
Typosyllis cornuta	-	-	-	-	-	-	-	1	5	-	-	-	-	-	-	-	-	-	-	-	-
Typosyllis sp Juvenile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Valvatida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Velutina velutina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westwoodilla caecula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westwoodilla tone	-	-	-	1	-	-	1	-	-	-	1	4	-	1	1	1	1	1	3	-	1
Xylophaga washingtona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yoldia seminuda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zygonemertes sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-

	BWT-BTHC-7			BWT-BTHC-7A		
Taxa	**R-1**	**R-2**	**R-3**	**R-1**	**R-2**	**R-3**
Tritella pilimana	-	-	-	-	-	-
Tubularia sp	-	-	-	-	-	-
Tubulariidae	-	-	-	-	-	-
Turbonilla sp	-	-	-	1	1	-
Turtonia minuta	-	-	-	-	-	-
Typosyllis caeca	2	5	2	12	5	3
Typosyllis cornuta	-	-	-	1	2	2
Typosyllis sp Juvenile	-	-	-	-	-	-
Valvatida	-	-	1	-	1	-
Velutina velutina	-	1	-	1	-	1
Westwoodilla caecula	-	-	-	-	-	-
Westwoodilla tone	2	1	3	2	1	-
Xylophaga washingtona	-	-	-	-	-	-
Yoldia seminuda	-	-	-	-	-	-
Zygonemertes sp	-	-	-	-	1	-