County: Jefferson
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DELIVERABLES FOR **TASK NO: 6 – Olympia Oysters**

T6.5 Olympia Oyster Summary Report

PROGRESS REPORT: [ ] FINAL REPORT [X]

PERIOD COVERED: July 1, 2018 – September 30, 2018

DATE SUBMITTED: Oct. 15, 2018

See also T6.5A for copies of Olympia Oyster permits for upcoming Discovery Bay deployment

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2018 Olympia Oyster Survey Data & Summary Report
(Discovery and Quilcene Bays)

Olympia Oyster Task 6.5

This Report includes summaries of Olympia oyster monitoring and enhancement activities at Discovery and Quilcene Bays, including monitoring summaries, data collected at both sites, photos and media articles. Copies of all the agency permits for the Discovery Bay 'Lagoon Site" where we will be placing additional shell in 2019 is under separate cover as Task 6.5A.

DISCOVERY BAY

Background

Discovery Bay has a small natural Olympia oyster population near the southeast portion of the bay (Maynard Beach area), along with scattered occurrences of Olympia oysters in other areas of the Bay. The MRC's goal is to collaborate with WDFW and Jamestown S'Klallam Tribe (Co-Managers) to enhance and expand the main population by increasing appropriate, available substrate (clean cultch spread on tidelands) in nearby areas to facilitate natural recruitment. We started this particular project in 2014 with distribution of clean shell within a half-acre area out in the bay ("Powerline Site"), surrounded by eelgrass. In July 2016 volunteers dispersed an additional 80 bags of clean cultch over the Powerline Site, just a month before our annual 2016 monitoring. No additional cultch was added in 2017 or 2018.

In 2017 we decided that adding additional clean cultch to the area immediately adjacent to the established population would allow additional recruitment and expansion of that segment of the population. In 2018 we completed the process of applying for and receiving all the necessary agency permits to add additional cultch adjacent to the main population, in the area we are calling the "Lagoon Site". Copies of all the permits are included in Deliverable 6.5A, submitted separately.

Annual monitoring took place on **July 13, 2018**, with 7 volunteers and one MRC staff. Monitoring data has been compiled and is summarized in this report.

Shells Stacks: On May 29, 2018 we placed 3 shell stacks for the Puget Sound Restoration Fund (PSRF) at the Discovery Bay Powerline site and collected those stacks on September 6, 2018. PSRF uses this technique to compare recruitment rates from various sites around Puget Sound. Shell stack data is being compiled in October to be sent to PSRF.

Monitoring Results for Discovery Bay

Table 1 provides a summary of the last 4 years of monitoring. Spat numbers and size measurements give us an indication of success, measured by natural recruitment, multiple age classes and increased growth. Monitoring protocols were adjusted and refined in the first 2 years. In 2017, Jefferson MRC began collecting data in a way that more closely aligns with regional Olympia oyster recovery efforts. We also shifted the orientation of the transects and added a transect immediately south of the powerlines to capture more of the Olympia oysters on shell that we assumed was moved there by the currents, as very little substrate was present on or immediately adjacent to that area before the MRC began its work. In 2015 and 2016, spat height was only measured as greater than or less than 15 mm (a rough estimate of reproductive maturity). In 2017, we began recording actual height to be more consistent with other regional monitoring efforts.

Table 1: Summary of Discovery Bay Data from 2015-2018

Data Collected	2015	2016	2017	2018
# of ¼m^2 quadrats monitored	43	46	48	77
Average % shell cover per quadrat	5%	7%	12.4%	30.6%
Total # spat counted	215	83	595	732
Average size of spat (mm)	--	--	32.37	33.92

The addition of new shell in July 2016 also made it difficult to directly compare data from 2015-16 with 2017-2018 data. We can, however, compare 2017 and 2018 data since we used the same protocols for both. Table 2 summarizes the data from 2017 and 2018, while Table 3 and Table 4 includes more specific data from transects in each year. In 2018, we also upgraded our database organization, using pivot tables in Excel, which will allow us to create a wider range of reports as we continue annual monitoring. In 2018, we also had more time to monitor (lower tides) and a larger volunteer team than in 2017, resulting in measurements of 732 spat from 77 quadrats (19.25 m^2) compared to 2017's 595 spat from 48 quadrats (12 m^2).

The range of spat sizes observed in 2018 (3 to 66 mm) was similar to the range of 2017 spat sizes (4 to 75 mm). This wide range of multi-age classes supports our assumption that natural recruitment is occurring.

Table 2: Comparison of 2017 and 2018 Discovery Bay Monitoring Data

Year	Total # Quad	Q-area monitored (m^2)	# Spat	Avg Length (mm)	Ave % cover-all Q
2018	77	19.25	732	33.9	30.6
2017	48	12	595	32.4	12.4

Table 3: 2017 Discovery Bay Monitoring Data

Transect #	Total # Quad	Q-Area monitored (m^2)	# Spat	Avg Length (mm)	Ave % shell cover-all Q
1	10	2.5	76	40	7.5
2	9	2.25	102	39.5	8.1
3	8	2	78	33.9	6.25
4	6	1.5	34	34.8	8.3
5	5	1.25	11	17.4	17.4
6	5	1.25	14	19.2	4.2
T-A	5	1.25	280	41.8	35
2017 Totals	48	**12**	**595**	**32.37**	**12.4**

Table 4: 2018 Discovery Bay Monitoring Data

Transect #	Total # Quad	Q-Area monitored (m^2)	# Spat	Avg Length (mm)	Ave % shell cover-all Q
1	6	1.5	117	31.53	11.7
2	9	2.25	31	31.19	n/a
3	7	1.75	145	32.98	23.0
4	7	1.75	109	35.26	14.9
5	9	2.25	120	39.61	16.0
6	7	1.75	54	36.09	8.3
7	4	1	31	35.19	35.0
8	5	1.25	9	37.11	19.8
9	5	1.25	19	20.16	40.4
10	4	1	15	29.93	19.2
11	4	1	36	25.03	17.5
12	4	1	1	50.00	0.3
T-A	6	1.5	45	36.91	8.5
2018 Totals	**77**	**19.25**	**732**	**33.92**	**30.6**

Documentation: Original data forms are stored at the MRC office, scanned copies are saved in electronic files, and data is entered in an Excel database. Shell stack data reporting forms are stored at the MRC office, scanned and also sent to PSRF. The MRC does not maintain a database for the shell stack data or do any comparisons from year to year. Bridget Gregg compiled the 2018 Discovery Bay data collected by the MRC monitoring team.

Discovery Bay Recommendations for 2019

Continue monitoring using the same protocols, with perhaps some tweaking of the data sheets to allow for easier data entry. Due to the uneven distribution of the shell within the original project area, it would be useful to measure the actual area of cultch observed each year, including south of the powerlines and see how it changes over time. It could be a challenge to determine this "boundary", since the cultch was often hidden under a thin layer of green macro-algae (temporarily removed when collecting data in a quadrat) in some areas in 2017 and 2018. Also, it would be difficult to see how much cultch has moved into adjacent eelgrass beds without disturbing the eelgrass.

QUILCENE BAY

Quilcene Bay is the Jefferson MRC's second Olympia Oyster project site. Our goal is to test feasibility of re-establishing a healthy population of Olympia oysters in Quilcene Bay. Scattered Olympias are present along much of the bay's beaches in the low-tide areas (observed during a May reconnaissance survey with Puget Sound Restoration Fund staff), but there are no dense beds of Olympia present. The MRC test plots are on WDFW tidelands adjacent to commercial clam beds on the southwest side of Quilcene Bay. Access is from the WDFW Quilcene Bay Tidelands access at the Linger Longer Rd parking lot. The project is a collaboration with WDFW, Tribal Co-Managers and the MRC. The MRC serves as team facilitator, coordinates volunteers, arranges for donated and purchased seeded cultch (Hood Canal genotype), and manages the database. In addition to our work, Puget Sound Restoration Fund (PSRF) also has an Olympia oyster site on the east side of Quilcene Bay. Test beds allow us to figure out if environmental conditions (warm temperatures, adjacent uses and predators such as oyster drills) are a problem before investing in larger scale enhancement work.

We began in 2016 by testing survival of wild-seeded Olympia oyster cultch from 11 bags spread into 5 small plots. Initial results from the 2017 monitoring of the 2016 seeded cultch were encouraging, so we set out another 78 bags of hatchery-seeded, overwintered cultch in May 2017 in the same plots.

In 2018, we monitored those same 5 plots on May 18, 2018 with 11 volunteers and 4 staff from the MRC, WDFW and Jamestown S'Klallam Tribe. See Table 1 below for those monitoring results. Table 2 shows the baseline measurements of the May 2017 seeded cultch sampled from the bags, before it was spread into the plots.

Overall, we were disappointed in the survival rate for the number of spat placed in the plots (average number of spat/shell dropped from **5.64 spat/shell** when first set out in 2017 to **1.68 spat/shell** the following year. Average spat also decreased in average size from **19.81 to 17.88 mm**). A wide range of age classes was present in both the 2017 bagged seeded cultch (5 to 35 mm) and the 2018 test plot spat (6 mm to 33 mm). We decided that it would be useful to test a new area at a lower tidal elevation and further away from the shellfish growing areas to see if survival rates are higher. This was done in August 2018. See Table 3 below. Both sets of test plots will be monitored in 2019.

Table 1: <u>2018</u> Spat Quantity & Size in the 2017 Quilcene Bay Test Plots

Summary of 2018 Spat # and Size from 2017 Quilcene Test Plots						
	Plot 1	**Plot 2**	**Plot 3**	**Plot 4**	**Plot 5**	**TOTALS**
Avg Spat Size/Plot	19.51	17.05	15.33	18.57	18.95	**17.88**
Avg # spat/shell	1.56	1.36	1.63	2.00	1.87	**1.68**
# of spat measured	161	98	83	126	174	**642**
Min. # quadrats*	10	6	8	11	8	**43**
Max # quadrats*	13	6	8	11	13	**51**

** The numbering of the quadrats on the field sheets was unclear in some cases, so we aren't quite sure how many quadrats we sampled. Spat measurements and total number of spat counted are fine.*

Table 2: Baseline data of seeded cultch from 2017 Quilcene Bay bags

SUMMARY of Spat # and Size from 2017 Cultch Bag Sampling Before Spreading							
	Plot 1	**Plot 2**	**Plot 3**	**Plot 4**	**Plot 5**	**3 sm bags***	**All Plots**
Avg Spat Size/Plot	20.24	19.74	17.86	19.52	20.13	21.37	**19.81**
Avg # spat/shell	5.22	4.9	3.98	6.04	4.58	9.1	**5.64**
# of spat measured	100	100	100	100	100	20	**520**
100 Olys measured for each plot.							
** 3 small bags of shell counted separately, then dispersed into plots*							

Shells Stacks: On May 18, 2018 we placed 3 shell stacks for the Puget Sound Restoration Fund (PSRF) at the Quilcene Bay Powerline site and collected those stacks on October 5, 2018. PSRF uses this technique to compare recruitment rates from various sites around Puget Sound. Shell stack data is being compiled in October to be sent to PSRF.

2018 Deployment of Seeded Cultch into New Quilcene Bay Test Plots

On August 11, 2018, 9 volunteers and one MRC staff collected baseline data from 75 bags of wild-seeded cultch and spread them in 3 test plots in a new area southeast of the original five test plots. Taylor Shellfish provided the cultch with an approved WDFW Transfer Permit (50 bags were purchased; 25 bags were donated) and arranged for delivery to the site by boat. WDFW and MRC staff marked the site on August 9th with a buoy marker placed at low tide and GPS coordinates, so Taylor Shellfish could deliver them to the right location at high tide on August 10th.

Protocols for sampling are included in the attachments. Basically, we counted the number of spat per shell from a random sampling of 60 shells (10 shells/cultch bag from 6 bags). We also measured the height of 100 Olys on random shell from those same bags. Table 3 summarizes the baseline data.

Table 3: Summary of Spat # and Size from 2018 Cultch in New Test Plots

Summary of Spat # and Size from 2018 Cultch in New Test Plots				
	Plot 2018-1	**Plot 2018-2**	**Plot 2018-3**	**All Plots**
Avg Spat size/Plot	23.33	23.23	23.86	23.47
Avg # spat/shell	2.43	2.92	2.75	2.70
# of spat measured	100	100	100	300

Quilcene Bay Next Steps

- Revise data sheets to make them easier for volunteers to use; easier for data entry; and check if they can also be more consistent with other regional efforts.
- Invest in improvements to database so it can be more useful, such as creating pivot tables like we're doing for Discovery Bay.

- Plan for better training of volunteers who are entering the data in the field.
- Plan for the new challenge of having 2 different sets of test plots to be monitored in 2019.
- The MRC has no plans for adding new seeded cultch to any of the test plots in 2019.

The MRC also assisted four Puget Sound Restoration Fund and WDFW staff with a reconnaissance survey of lower Quilcene Bay shorelines on May 16, 2018. MRC recruited 7 volunteers who worked in four teams to walk various sections of shoreline, taking photos and notes along the way. Volunteers donated over 38 hours for this effort. Sign-in sheets and few photos are included below.

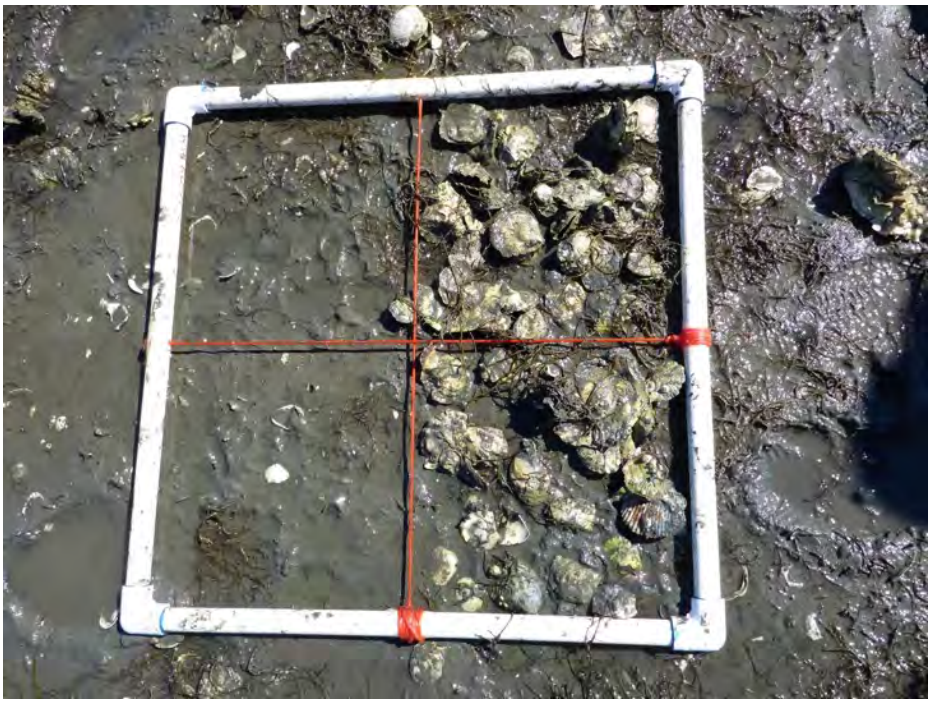
Attached:

- Photos. *All photos by Cheryl Lowe unless otherwise noted.*
- Media & Outreach: *Article in Port Townsend Leader about Quilcene Bay Olympia oysters*
- Data Sheets

DISCOVERY BAY PHOTOS

Monitoring the Powerline Site: L to R, Greg Patton, Frank Handler, Neil Harrington, Shelley Patton, Kathy Woods-Smith, Jed Marshall, Glenn Hartmann.

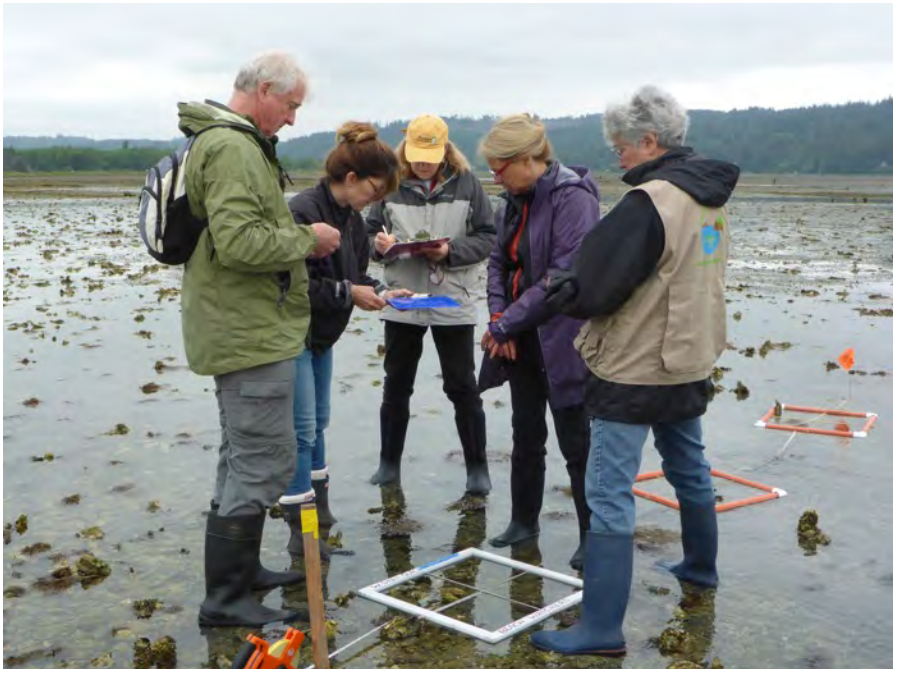
Healthy Olympia oysters at the Powerline Site.



Sample quadrat with 50% shell coverage (protocols call for rearranging shell within quadrat in order to estimate coverage)

Broader view of Powerline Site, with pink flags marking shell stacks.

QUILCENE BAY PHOTOS



Oly Plot Monitoring_5.18.18: L-R, Gregg & Shelley Patton, Becky Brown-Nienow, Nancy Stevens, Jackie Gardner

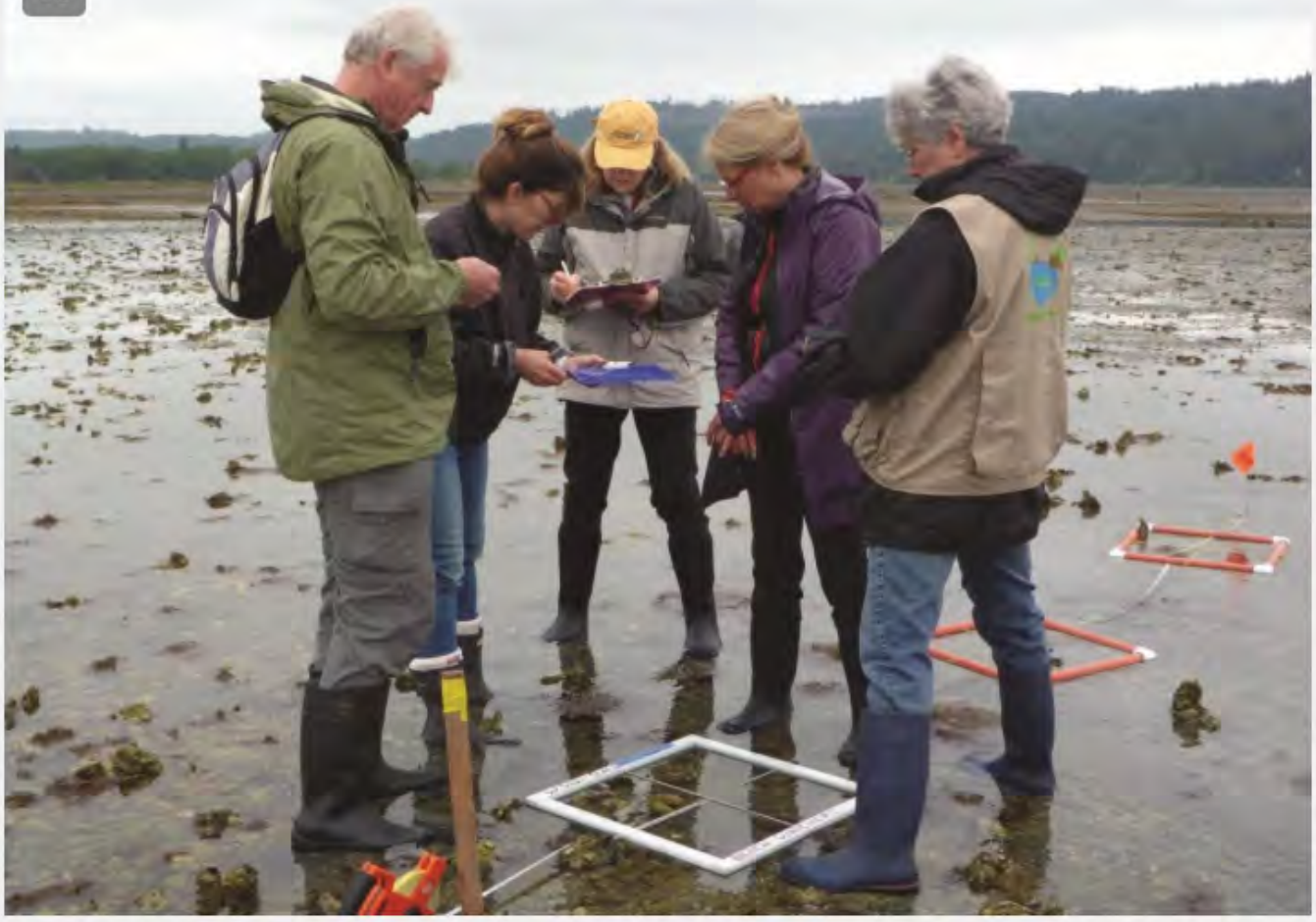
Monitoring Team for new test plots (baseline data) Aug2018_P1040447: L-R, Sarah Fisken, Anne Seeley, Sarah Whitten, Kathy Woods-smith, Shelley & Gregg Patton, Frank Handler, Kathy & Glenn Hartmann.

Cultch Bays at new test plots_Aug2018_P1040454

PSRF Olympia oyster Quilcene Bay Reconnaissance May 16, 2018 with Chris Eardley & BetsyPeabody.

Can Olympia oysters make a comeback in Quilcene Bay?

KIRK BOXLEITNER
KBOXLEITNER@PTLEADER.COM May 22, 2018 0



Volunteers take stock of the Olympia oyster population in Quilcene Bay during low tide May 16.

Courtesy photo

http://www.ptleader.com/testing/can-olympia-oysters-make-a-comeback-in-quilcene-bay/article_e83f49b4-f13c-5d7f-9a62-7bfb983a2318.html

Can Olympia oysters make a comeback in Quilcene Bay?

KIRK BOXLEITNER
KBOXLEITNER@PTLEADER.COM May 22, 2018

Volunteers take stock of the Olympia oyster population in Quilcene Bay during low tide May 16.

Courtesy photo

Many hands sought to make relatively light work out of an ambitious undertaking May 16 in Quilcene, as roughly a dozen volunteers assembled at the end of Linger Longer Road to take stock of the area's remaining Olympia oyster population.

Before over-harvesting and pulp mill pollution forced Pacific Northwest oyster farmers to turn to the Pacific oysters of Japan as a substitute, Olympia oysters were the dominant native species, and various environmental and oyster farming-affiliated groups are keen to see the molluscs make a comeback.

Brian Allen, a marine ecologist with the Puget Sound Restoration Fund (PSRF), instructed the volunteers who arrived at the Quilcene Boat Ramp to record not only where they found any Olympia oysters as the tide went out, but also where the oysters tend to aggregate.

"I take digital pictures with GPS notes," Allen said. "The important thing is to identify the locations well enough that other people can return to those places and confirm your findings, and eventually cobble this all together into one big map image. Where is the oysters' largest presence? Where do you stop encountering them? This is what we need to know."

Allen and Brady Blake, a shellfish biologist with the state of Washington, advised volunteers to check underneath rocks or pieces of wood, since oysters prefer "thermal refuges" that avoid going to extremes of hot or cool.

"Bear in mind, you're going to find the oysters not in the places they've sought out, but in the places they've managed to survive," Allen said. "They need structures to which they can attach themselves."

Chris Eardley, the Puget Sound shellfish policy coordinator for the state Department of Fish and Wildlife, agreed with Allen and Blake that the sound has become "more favorable" to Olympia oysters in recent years than it was during the early part of the 20th century, as most of the "major stressors" which impeded the species' survival are "no longer in play," in Blake's words.

"But in order for us to develop a plan to restore the species, we need to know what the state of the species looks like right now," Eardley said, citing the potential impacts of factors such as shoreline ownership and the presence of predator species.

PSRF executive director Betsy Peabody recalled that Quilcene Bay alone once hosted roughly 100 acres of "solid" Olympia oyster beds.

"They were the dominant life form," Peabody said. "So, the question becomes, to what extent are they still here, and where?"

According to Peabody, the PSRF, which was founded in 1997, was looking for restoration programs to which it could "add value" when the state Department of Fish and Wildlife released its initial Olympia oyster stock rebuilding plan in 1998.

"We love collaborating with tribes, industry, government, researchers and community groups," Peabody said, outlining PSRF's mission to rebuild Olympia oyster populations and restore native oyster habitat at 19 priority locations throughout Puget Sound. "Oyster beds are themselves a biogenic habitat in that they're a living organism which provides a natural habitat for other species."

Among PSRF's tribal partners are the Jamestown S'Klallam Tribe, represented during the May 16 outing by environmental biologist Neil Harrington, who would return to the site two days later for the tribe's yearly monitoring of its own test plots on the Quilcene tidelands.

"These test plots are areas where we spread oyster shell with young Olympia oysters in 2016, and again in 2017, to gauge if this area would be suitable for a larger project," Harrington said. "If this area does have a good survival rate, we'll be looking to expand and create a larger oyster bed. If the survival rate is low, we'll have to look for a new area to create a bed in this general area of the Quilcene Bay."

Harrington told The Leader after the May 16 outing that the volunteers found "significant wild populations" in Quilcene Bay.

"So they are persisting, albeit not so much as beds of oysters, but in more scattered populations" he said.

Cheryl Lowe, water programs coordinator with the Jefferson County Marine Resources Committee and the Washington State University Extension Office in Port Hadlock, reiterated Peabody and Allen's points about Olympia oyster beds growing together to create overlapping, layered structures that provide shelter, habitat and food for other marine species, much like eelgrass or kelp beds.

"Restoring Olympia oyster beds makes Puget Sound more resilient as conditions continue to change," Lowe said.

Lowe acknowledged that native oysters tend to grow slower and smaller than the non-native Pacific oysters, but she touted the Olympia oysters' superior resiliency in the face of ocean acidification.

"Perhaps it's because they've evolved and adapted in the Pacific Northwest, from Baja California to Southeast Alaska, where marine conditions have changed over time," Lowe said. "I've read several articles about Olympia oysters being 'wiped out,' which is not quite true. Large beds of Olympia oysters are very uncommon in much of their historic range, but small numbers have managed to hold on in scattered areas."

Lowe confirmed Harrington's account that the May 16 survey in Quilcene located Olympia oysters in small clusters or singles attached to rocks or Pacific oyster shells along the many small seeps and narrow strips of suitable habitat on those shores.

"They're around, but not providing the ecological services they could offer if they were growing in denser, larger beds," Lowe said. "It's like scattered trees planted in parks and gardens, versus a forest."

Lowe welcomes the involvement of private tidelands landowners in restoration efforts, so long as the property owners can ensure they have suitable habitat and get seeded cultch genotypes from their part of Puget Sound.

Cultch is the mass of stones, broken shells and grit from which an oyster bed is formed.

"For example, southern Hood Canal stock is very different than Sequim Bay or Discovery Bay stock, since each sub-population has adapted to local conditions," Lowe said.

She added that PSRF is growing several different genotypes in its hatchery.

"Private shellfish growers like Taylor Shellfish have also been donating seeded Olympia oyster cultch for the test plots that we looked at (May 18)," she said.

47.9951
122.878067

47.994967
122.87785

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	9:42	**End time:**	~~10:30~~
Monitors:	Greg, Glen, Kathy, Nigel	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	1	**Lat/Long**	E 47° 59.698 / 122° 52.671 W
# Quadrats with no shell:		**Lat/Long**	W 47° 59.706 122° 52.684

QUADRAT 1

% Coverage: 30

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	15	48 10	32	59 12	12 26	58	43	38 15 12 21 10
#2	15	5 9 20	30	19	47		52	44 18 30 44 11
#3		52 20	18	21	41			48 49 40 35
#4		48	45	42				30 62 48 47
#5		42	40	35				44 8
#6		5	14	30				44
#7		10	13					25
#8		6						43
		same		diff				

QUADRAT 2

% Coverage: 20

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	56	48	47	55 20	39	51		
#2				44 18		40		
#3				45 10				
#4				44 7				
#5				40 34				
#6				45				
#7				18				
#8				28				
				same				

QUADRAT 3

% Coverage: 10

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	18	46	50	9 45	12			
#2	16	50		12 50	8			
#3	42			11 30	12			
#4	34			11 11	10			
#5	40			11	32			
#6	58			22	41			
#7	12			40	40			
#8				38	58			
				same				

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

pg 2

Date:	7/13/18		
Start time:	~~10~~ 9:42	**End time:**	
Monitors:	Neil, Greg, Kathy	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	1	**Lat/Long**	
# Quadrats with no shell:	1	**Lat/Long**	

4

QUADRAT				**% Coverage:** 5				
# of Oly's measured	Shell 1 Oly mm	~~Shell 2~~ Shell 1 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	7	35						
#2	17							
#3	22							
#4	12							
#5	35							
#6	34							
#7	39							
#8	38							
	← SAME →							

5

QUADRAT				**% Coverage:** 5				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	49	52						
#2								
#3								
#4								
#5								
#6								
#7								
#8								

QUADRAT				**% Coverage:**				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18	**End time:**	
Start time:	9:40		
Monitors:	Shelley, Jed, Frank	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	2	**Lat/Long**	47.99505 122.87779
# Quadrats with no shell:		**Lat/Long**	47.99523 122.878

new

QUADRAT				**% Coverage:**				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	34							
new #2	38							
new #3	3							
#4								
#5								
#6								
#7								
#8								

QUADRAT				**% Coverage:**				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

QUADRAT				**% Coverage:**				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

pg 2

Date:	7/13/18		
Start time:	9:40	**End time:**	
Monitors: Shelley Jed / Erin K		*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	2	**Lat/Long**	
# Quadrats with no shell:	TTN	**Lat/Long**	

QUADRAT 1 — **% Coverage:** ~~Shell 4~~ — Forgot to do this until next transect

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	30	15	40	35				
#2	36		38					
#3	21		35					
#4	22		35					
#5	21		38					
#6	28		42					
#7	25		42					
#8								

new **QUADRAT** — **% Coverage:** See above

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	43	15						
#2	26	30						
#3		25						
#4								
#5								
#6								
#7								
#8								

new **QUADRAT** — **% Coverage:** See above

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	31	38	45	40				
#2	35	34		15				
#3				15				
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	10:35 am	**End time:**	
Monitors:	Shelley, Jed, Frank	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	3	**Lat/Long**	47.99503 122.87717
# Quadrats with no shell:		**Lat/Long**	47.99522 122.87797

QUADRAT				**% Coverage:** *25%						
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	Shell 8	Shell 9	Shell 10 notes--type of shell, etc
#1	43	30								
new Q #2	30	16								
#3		31								
*New Q #4	45	39	44	45	30	30	20	26	25	40
#5			28		45	24	35	15	25	
#6			49		30	15	15	38	25	
#7			28			25	35	35	25	
#8									150	

QUADRAT				**% Coverage:**				
# of Oly's measured	Shell 11 Oly mm	Shell 12 Oly mm	Shell 13 Oly mm	Shell 14 Oly mm	Shell 15 Oly mm	Shell 16 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
↑ same #1	34	25	36	35	33	35		
#2	40	15	35		36			
#3	14	15	38		23			
#4	12	15	13		28			
#5								
#6								
#7								
#8								

New **QUADRAT**				**% Coverage:** 33%						
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	Shell 8	Shell 9	Shell 10 notes--type of shell, etc
#1	28	40	36	20	13	40	38	30	28	38
#2	40		44	15	38		36		37	
#3	23		32	20			34			
#4	28			15						
#5	31			5						
#6	20			10						
#7				45						
#8				10						

Shell 11	Shell 12	Shell 13	Shell 14	Shell 15
35	37	35	44	

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Pg 2

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	Shelley, Frank, Jed	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	3	**Lat/Long**	
# Quadrats with no shell:		**Lat/Long**	

QUADRAT — **% Coverage:** 25%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	Shell 8	Shell 9	Shell 10 notes--type of shell, etc
#1	36/9	25	31	40	15	38	64	52	40	45
#2	50	40							15	
#3	40	15							10	
#4	46								40	
#5										
#6										
#7										
#8										

↑ same

QUADRAT — **% Coverage:** 20%

# of Oly's measured	Shell 11 Oly mm	Shell 12 Oly mm	Shell 13 Oly mm	Shell 14 Oly mm	Shell 15 Oly mm	Shell 16 Oly mm	Shell 17 Oly mm	notes--type of shell, etc
#1	43	45	41	20	45	8	50	
#2	11					10	14	
#3	18						8	
#4								
#5								
#6								
#7								
#8								

New

QUADRAT — **% Coverage:** 20%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	Shell 8	Shell 9	Shell 10 notes--type of shell, etc
#1	45	60	45	48	40	33	47	50	45	47
#2	50	47				38		47	50	
#3		31							60	
#4		36							45	
#5		35							30	
#6		48								
#7		26								
#8										

New

	40	45	40	20 coverage	12%					
		27	20	44	50					
		46								
		49								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18	**End time:**	
Start time:	10:25		
Monitors:	Greg, Kathy, Neil	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	4	**Lat/Long**	47.99503 122.87787
# Quadrats with no shell:		**Lat/Long**	47.99525 122.87782

1 **QUADRAT** — **% Coverage:** 25

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	43	43	41	42				
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2 **QUADRAT** — **% Coverage:** 7

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	10	15						
#2	46	18						
#3	46	35						
#4		42						
#5		42						
#6								
#7								
#8								

3 **QUADRAT** — **% Coverage:** 45

# of Oly's measured	Shell 1/14 Oly mm		Shell 2/15 Oly mm		Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc 8	9	10	11	12 etc	13
#1	48	49	51	40	35/11	42	40	40	55	15	48	43	50	53	52
#2			40	52	41		50	40	55	14			55	49	48
#3				41	32			45		45			35		14
#4				39	20					47			34		33
#5					16								35		
#6					15								5		
#7					17								9		
#8					10								7		
					16								12		

SHELL 16: 45, 40, 44

SHELL 17: 40

SHELL 18: 42

SHELL 19: 46

SHELL 20

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2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	KATHY, NEIL, GREGG	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	4	**Lat/Long**	
# Quadrats with no shell:		**Lat/Long**	

4 **4 QUADRAT** — **% Coverage:** 10%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	45 /45	50	48	48				
#2	38							
#3	45							
#4	53							
#5	19							
#6	14							
#7	22							
#8	37							

5 **QUADRAT** — **% Coverage:** 7%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	45	45	47	42	18			
#2		18			38			
#3					48			
#4								
#5								
#6								
#7								
#8								

6 **QUADRAT** — **% Coverage:** 5%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	35	20	30	40				
#2	50	48	47					
#3								
#4								
#5								
#6								
#7								
#8								

p3

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	KATHY, NEIL, CRAIG	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	4	**Lat/Long**	
# Quadrats with no shell:		**Lat/Long**	

7

QUADRAT — **% Coverage:** 5%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	11 / 20							
#2	13 / 13							
#3	43 / 14							
#4	50 / 53							
#5	32 / 22							
#6	44 / 18							
#7	44 / 18							
#8	20 / 43 / 34							

TRANSECT #7

1 **QUADRAT** — **% Coverage:** 50%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	51	34	32	25				
#2		20						
#3								
#4								
#5								
#6								
#7								
#8								

2 **QUADRAT** — **% Coverage:** 20%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	30							
#2	20							
#3								
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	Shelley, Frank, Jed	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	5	**Lat/Long**	47.99507 122.8776
# Quadrats with no shell:		**Lat/Long**	47.99525 122.87786

New

QUADRAT				**% Coverage:** 4% 1 shell				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	44							
#2	35	25	45	% coverage 10%				
#3	45	45	55					
#4		45	40					
#5			25					
#6			30					
#7			40					
#8								

QUADRAT				**% Coverage:** 50%							
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	Sh 8	Sh 9	Sh 10	Sh 11
								notes--type of shell, etc			
#1	45	40	40	50	52	60	38	47	45	41	60
#2	46				42		25		15	44	
#3							46			37	
#4										39	
#5											
#6											
#7											
#8											

Same

QUADRAT				**% Coverage:**							
# of Oly's measured	Shell #12 Oly mm	Shell #13 Oly mm	Shell #14 Oly mm	Shell #15 Oly mm	Shell #16 Oly mm	Shell #17 Oly mm	Shell #18 Oly mm	Sh 19	Sh 20	Sh 21	Sh 22
								notes--type of shell, etc			
#1	38	45/40	34	35	45	45	35	41	45	38	160
#2	40	45/40	41	60	52		40			14	50
#3	15	40		30							
#4	33	40		50							
#5	28	20									
#6	41	35									
#7		35									
#8		50									
		40									

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	Shelley Frank, Jed	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	5	**Lat/Long**	
# Quadrats with no shell:		**Lat/Long**	

QUADRAT — **% Coverage:** 20%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	40	45	45	45	48	50		
#2	45	35		25	36			
#3	50	40		20	48			
#4	45			10	23			
#5	35			5				
#6	40			30				
#7								
#8								

QUADRAT — **% Coverage:** 20%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	50	45	40	18	45	41	60	
#2	40		40	47	50	33	40	
#3			40	42		42	50	
#4				43		58		
#5						33		
#6								
#7								
#8								

QUADRAT — **% Coverage:** 10%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	45	45	15					
#2		35	20					
#3								
New #4	45			Coverage		5%		
#5	20							
#6								
New #7	50	35		Coverage		20%		
#8								

New

40/50
40/45
25
30
45
45

Coverage 5%

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	10:40	**End time:**	
Monitors:	Glenn & Cheryl	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	~~0~~ 6	**Lat/Long**	47.99512 122.87755
# Quadrats with no shell:		**Lat/Long**	47.99527 122.8775

QUADRAT — **% Coverage:** 8 %

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	43	44	46	47	55	59		
#2			48					
#3								
#4								
#5								
#6								
#7								
#8								

new **QUADRAT** — **% Coverage:** 27 %

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	10	57	31	49	50	48	38	42
#2	18	60	45				35	
#3	35	18	12				20	
#4			10				54	
#5							18 ~~17~~	
#6							45 12	
#7							49 20	
#8							14 15	

new **QUADRAT** — **% Coverage:** 15 %

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	53	48	49	44	18	45	39	40
#2					19		48	50
#3					20		30	42
#4					18		38	
#5					41			
#6					~~42~~			
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

PQ2

Date:	7/13/18	**End time:**	11:05 m
Start time:			
Monitors:	Glenn & Cheryl	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	6 PQ2	**Lat/Long**	
# Quadrats with no shell:	1 (5% other shell)	**Lat/Long**	

QUADRAT — **% Coverage:** 2 %

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	45							
#2	50							
#3								
#4	28	25						60% shell
#5								
#6								
#7 Transect 9		11:05 pm						
#8								

QUADRAT — **% Coverage:** 65

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	15							
#2	12	11	12	16				90% shell cover
#3		15		24				
#4								
#5	39							25% cover
#6	30							
#7	34							
#8								

QUADRAT — **% Coverage:** 24 %

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	40	10	20	12				
#2			15					
#3			11					
#4			34					
#5			13					
#6								
#7	20							8% cov
#8								

Transect 9 data copied to a new data sheet

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	10:50	**End time:**	
Monitors:	KATHY, NEIL, GREGG	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	7	**Lat/Long**	47.9951 122.87753
# Quadrats with no shell:		**Lat/Long**	47.99522 122.87760

3

QUADRAT				**% Coverage: 25%**				Shell 8
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	43	40	43	53	52/45	23	34	46
#2					48/44			
#3					35/47			
#4					17			
#5					15			
#6					42			
#7					15			
#8					5			

4

QUADRAT				**% Coverage: 45%**				SHELL
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	40	44	43	35	40	30		
#2								
#3								
#4								
#5								
#6								
#7								
#8								

TRAN-SECT #11

1 QUADRAT				**% Coverage: 25%**				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	16	10						
#2	18	13						
#3	13	14						
#4	7	14						
#5	9							
#6	15							
#7	16							
#8								

Transfered to Transect 11

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	11am	**End time:**	
Monitors:	Shelley, Frank, Jed	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	8	**Lat/Long**	47.99515 122.877483
# Quadrats with no shell:		**Lat/Long**	47.99527 122.87760

QUADRAT				**% Coverage:** 12%				In 8 Sh 9, shell 10
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	40/40	41						
NEW #2				coverage		50%		
#3	43	60						
NEW #4				coverage		25%		
#5								
NEW #6				coverage		10%		
#7	25/23							
#8	30/32							

QUADRAT				**% Coverage:** 0.5%				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
NEW #1				coverage		2%		
#2								
#3 NEW TRANSECT			10					
#4								
#5								
#6								
#7								
#8								

QUADRAT				**% Coverage:**				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	11:05	**End time:**	
Monitors:	Cheryl & Glenn	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	9	**Lat/Long**	47.99517 122.877383
# Quadrats with no shell:		**Lat/Long**	47.99523 122.87750

(5 Quadrats measured)

QUADRAT — **% Coverage:** 65

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	15							not many dy on shell
#2								
#3								
#4	12	11	12	16				80 % shell cov
#5		15		24				not many dy
#6								
#7								
#8								

new Q

QUADRAT — **% Coverage:** 25 %

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	39							25 % cov
#2	30							
#3	34							
#4								
#5	40	10	20	12				24 % cover in this Quadrat
#6			15					
#7			11					
#8			34					
			13					

new Q

new

QUADRAT — **% Coverage:** 8 %

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	20							
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	Shelley, Frank, Jed	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	10	**Lat/Long**	47.995167 122.87738
# Quadrats with no shell:	1	**Lat/Long**	47.99533 122.87752

QUADRAT				**% Coverage:** 60%				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	30	66	42	37				
#2	15							
#3				Coverage		25%		
#4	15	15	30					
#5			45					
#6			35					
#7			35					
#8								

New Q

QUADRAT				**% Coverage:** 6%				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

QUADRAT				**% Coverage:** 5%				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	35							
#2	12							
#3	11							
#4	26							
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	KATHY, NEIL, GREGG	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	11	**Lat/Long**	47.99522 122.87732
# Quadrats with no shell:		**Lat/Long**	47.99533 122.87745

2

QUADRAT				**% Coverage:** 15%				SHELL 8	
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**	
#1	35	48	33	42	50	46	17		
#2		45	50						
#3		13	14						
#4									
#5									
#6									
#7									
#8									

3

QUADRAT				**% Coverage:** 5%				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	13							
#2	25							
#3								
#4								
#5								
#6								
#7								
#8								

4

QUADRAT				**% Coverage:** 25%				
# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	**notes--type of shell, etc**
#1	38	41	15	40				
#2		52	14					
#3		53						
#4		18						
#5		12						
#6		14						
#7		12						
#8		16						

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	10:59	**End time:**	
Monitors:	Kathy, Neil, Gregg	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	11	**Lat/Long**	
# Quadrats with no shell:		**Lat/Long**	

QUADRAT — **% Coverage:** 25%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	16	10						
#2	18	13						
#3	13	14						
#4	7	14						
#5	9							
#6	15							
#7	14							
#8								

QUADRAT — **% Coverage:**

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

QUADRAT — **% Coverage:**

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	Shelley, Frank, Jed	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	12	**Lat/Long**	47.99525 122.87725
# Quadrats with no shell:	111	**Lat/Long**	47.99533 122.87740

QUADRAT — **% Coverage:** 1%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	50							
#2								
#3								
#4								
#5								
#6								
#7								
#8								

Trans 1A 11:35

QUADRAT 4 — **% Coverage:** 15%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	27	48	40	48	54	10	60	52
#2						12	30	
#3						20	11	
#4						18		
#5						51		
#6						38		
#7						54		
#8						50		

Copied to new data sheet for Transect 1A

QUADRAT — **% Coverage:**

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:	11:30 am	**End time:**	
Monitors:	JED, FRANK, SHELLEY, KATHY, GREGG, NEIL	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	1A	**Lat/Long**	(along powerlines - no lat/long GPS recorded) ~~taken~~
# Quadrats with no shell:		**Lat/Long**	

1 **QUADRAT** — **% Coverage:** 8%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	20							
#2	35							
#3	12							
#4								
#5								
#6								
#7								
#8								

2 **QUADRAT** — Ø — **% Coverage:** Ø

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

3 **QUADRAT** — **% Coverage:** 20%

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	50	40	50	55	20	45	48	
#2	15	45	35		40	40		
#3	20	60	45		50	50		
#4	20	50	'		45	25		
#5		45			20	10		
#6								
#7								
#8								

Pg 2

2018 DISCOVERY BAY OLYMPIA OYSTER MONITORING

Date:	7/13/18		
Start time:		**End time:**	
Monitors:	KATHY, NEIL, JED, FRANK, SHELLEY, GREGG	*shells are Pacific oyster unless otherwise noted: Only shells with spat are itemized	
TRANSECT #	1A	**Lat/Long**	
# Quadrats with no shell:	11	**Lat/Long**	

5

QUADRAT 5 — **% Coverage:** 82

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	48							
#2								
#3								
#4								
#5								
#6								
#7								
#8								

6

QUADRAT — **% Coverage:** 15%

Shelley Frank Jed 11:35 am

copied from other data sheet

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1	27	48	40	48	54	10	60	52
#2						12	30	
#3						20	11	
#4						18		
#5						51		
#6						38		
#7						54		
#8						50		

QUADRAT — **% Coverage:**

# of Oly's measured	Shell 1 Oly mm	Shell 2 Oly mm	Shell 3 Oly mm	Shell 4 Oly mm	Shell 5 Oly mm	Shell 6 Oly mm	Shell 7 Oly mm	notes--type of shell, etc
#1								
#2								
#3								
#4								
#5								
#6								
#7								
#8								

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:	Kathy Hartmann Glenn Hartman Shelley, Frank, Marilyn			
PLOT #	1	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	1
QUADRAT #	New			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	18	20	19	
2	19			
3				
4				
5				
6				
7				
8				
QUADRAT #	New			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	26	21	19	25
2	23		16	
3	17			
4	15			
5	22			
6	20			
7	21			
8				
QUADRAT #	same as above			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	18	23	16
2		14		
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:	Shelley, Marilyn			
PLOT # 1		**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT #	same as page 7			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	17	20	13	
2	29			
3				
4				
5				
6				
7				
8				
QUADRAT #	New			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	16	21	20	16
2		12		
3		17		
4		20		
5		18		
6				
7				
8				
QUADRAT #	same			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	24	14	20	20
2	23	16		
3		12		
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:				
PLOT #	1	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	

QUADRAT # same as page 8

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	22	24	20
2				
3				
4				
5				
6				
7				
8				

QUADRAT # same as above

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	24	22	18	20
2		17		18
3				30
4				
5				
6				
7				
8				

QUADRAT # same

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	30	16	28
2	20		21	20
3			21	
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Glenn, Shelley, Marilyn, Frank, Kathy			
PLOT # 1		**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT # New				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	18	13	16	12
2			18	
3			7	
4				
5				
6				
7				
8				
QUADRAT # same.				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	12	20	30	13
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	30	18	21	
2		20	12	
3		12		
4		20		
5		21		
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date: 5/18/18		Shelley, Glenn, Frank, Marilyn		
Monitors:				
PLOT # 1		**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT # New				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	21	22	22	18
2		29		
3				
4				
5				
6				
7				
8				
QUADRAT # New				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	21	22	21	20
2				
3				
4				
5				
6				
7				
8				
QUADRAT # same				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	26	24	19	20
2	18	20		
3				
4				
5				
6				
7				
8				
	shell 5	shell 6	shell 7	shell 8
	18	21	30	14

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	1	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	

QUADRAT # same as page 11

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	19	20	16
2		22	12	
3			16	
4				
5				
6				
7				
8				

QUADRAT # same as above

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	20	28	
2	18		14	
3			11	
4			21	
5			16	
6				
7				
8				

QUADRAT # New

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	16	16	10
2				18
3				
4	~~~~~	~~~~~	~~~~~	~~~~~
5	#5	#6	#7	#8
6	20	21	19	20
7			22	20
8				

Page 12

New

#1
11

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Becky B-N, Nancy Stevens, Barb Heinz, Greg Patton			
PLOT #	1	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:	1:30pm			
			# Quadrats w/ no shell:	1

QUADRAT # 2

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20			
2	15			
3	23			
4	25			
5				
6				
7				
8				

QUADRAT # 3

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	18	18	20	16
2		15	18	
3			18	
4 Quad #3				
5	13	17	26	21
6			20	
7			26	
8				

QUADRAT # 3

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	20		
2				
3 Quad #4	20	18	22	26
4	24	22		19
5				
6 Quad #4	23	30	33	14
7			29	
8				

Quad #4 27 19 22 28

14

Quad #4 19 20 18

calipers
- extra tine w/ new shell

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	2	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
TAKS **QUADRAT #**	2			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1				
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1				
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1				
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:	Blake, Eardley, Lowe[illegible]ton, Parker			
PLOT # 2		**Center Pt Latitude:**	47.8079	
		Center Pt Longitude:	122.8624	
Start Time:				
2:06 PM			**# Quadrats w/ no shell:**	
Trans. **QUADRAT #** 1				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	11	13	26	17
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	27	25	9
2			7	
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	25	25	17	17
2				
3				
4				
5				
6				
7				
8				

Shell 1
24

Shell 2
24

0
11

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	2	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
~~**QUADRAT #**~~	2			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	25	12	23	12
2		12	12	11
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	12	20	22	17
2				23
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	13	25	19	25
2	9		18	
3	20			
4				
5				
6				
7				
8				

Shell 1
23
12

Shell 2
15

Shell 3
28

Shell 4
11

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	2	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT #	2			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	30	8	13	10
2	18	29		10
3				17
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	28	20	27	19
2	19	24		
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	13	25	18	20
2	10			
3	19			
4				
5				
6				
7				
8				

Shell 1
10
11

Shell 2
15

Shell 3
13

Shell 4

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:	Eyerly, Harrington, Blake, Gardner			
PLOT #	3	**Center Pt Latitude:**	47.8078	
		Center Pt Longitude:	122.8628	
Start Time:	1:37 PM			
			# Quadrats w/ no shell:	
QUADRAT #	1			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	14	25		
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1				
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1				
2				
3				
4				
5				
6				
7				
8				

0 shell
1 1 1

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	3	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT #	4			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	13	18	12	20
2	16		8	8
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	29	21	12	10
2	22			
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	13			
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	3	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
Trans. ~~**QUADRAT #**~~	4			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	25	15	24	18
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	17	17	16	17
2	16			11
3	6			
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	9	19	9	12
2	14			11
3	19			
4	21			
5	7			
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	3	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT #	3			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	31	18	11
2	13			
3	7			
4	17			
5	10			
6	15			
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	31	15	21	19
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	12			
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	3	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT #	2			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	11	15	17
2	25			14
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	30	11	10	16
2				
3				
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	12	14	12	15
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Eardley, Blake, Harrington, Gardner			
PLOT #	3	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
1:42			**# Quadrats w/ no shell:**	
QUADRAT #	2			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	19	16	16	12
2	10		10	
3	10		19	
4	21			
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	23	21	14	16
2	17		12	
3			6	
4				
5				
6				
7				
8				
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	10	25	22	30
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Kathy Hartmann, Glenn Hartmann, Shelly, Frank, Marilyn			
PLOT # 4		**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time: 12:30				
			# Quadrats w/ no shell:	
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	13mm	24 mm	11 mm	28mm
2	13mm	22 mm	18mm	12
3		15mm		8
4				30
5				29
6				18
7				30
8				
QUADRAT # same as above				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	14	27	12	12
2	21	10	14	
3	18		12	
4				
5				
6				
7				
8				
QUADRAT # same as above				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	24			
2	27			
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Kathy Glenn Frank Shelley Marilyn			
PLOT # 4		**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	111
QUADRAT # New				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	8	16	12	24
2			21	20
3			12	
4				
5				
6				
7				
8				
QUADRAT # same				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	10	30	22	20
2	14		8	
3	12			
4	10			
5	7			
6	20			
7				
8				
QUADRAT # same				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	32	20	22	19
2		7	7	12
3		23	22	
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date: 5/18/18			
Monitors:			
PLOT # 4	**Center Pt Latitude:**		
	Center Pt Longitude:		
Start Time:			
		# Quadrats w/ no shell: 11	

QUADRAT # same from page 2

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	21	24	25
2			20	
3			23	
4				
5				
6				
7				
8				

QUADRAT # same

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	19	20	26
2			24	
3			20	
4			26	
5			20	
6			18	
7				
8				

QUADRAT # New

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	27	29	10	12
2			12	
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Shelley, Marilyn, Glenn, Frank, Kathy			
PLOT #	4	**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	

QUADRAT # same from page 3

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	9	22	21	13
2	13	17	32	16
3		30		
4				
5				
6				
7				
8				

QUADRAT # same

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	25	19	16	12
2		18		
3		20		
4				
5				
6				
7				
8				

QUADRAT # New

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	23	20	17
2		17	22	28
3			18	
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:	Shelley, Marilyn, Glenn, Frank, Kathy			
PLOT # 4		**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT #	same as page 4			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	17			
2				
3				
4				
5				
6				
7				
8				
QUADRAT #	New			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	20	27	22
2		18	20	24
3		26		
4		25		
5		17		
6				
7				
8				
QUADRAT #	same			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	12	30	22	25
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Glenn, Shelley, Marilyn, Frank, Kathy			
PLOT # 4		**Center Pt Latitude:**		
		Center Pt Longitude:		
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT # New				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	32	22	16
2	18		30	12
3			24	14
4			20	14
5				12
6				
7				
8				
QUADRAT # same				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	18	22	20
2				
3				
4				
5				
6				
7				
8				
QUADRAT # same				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	28			
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Becky B-N, Nancy Stevens, Barb Heiner, Greg P.			
PLOT # 5		**Center Pt Latitude:**	47.8078	
		Center Pt Longitude:	122.863	
Start Time: 12:30				
			# Quadrats w/ no shell: / /	

N + center count

QUADRAT # (3) nearest

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	15	10	8	8
2				
3				
4				
5				
6				
7				
8				

QUADRAT # 3

Same

Oly measured on →	Shell 5 Oly Ht mm	Shell 6- Oly Ht mm	Shell 7- Oly Ht mm	Shell 8 Oly Ht mm
1	16	20	20	10
2				
3				
4				
5				
6				
7				
8				

QUADRAT # 7

Same

Oly measured on →	Shell 9 Oly Ht mm	Shell 10- Oly Ht mm	Shell 1- Oly Ht mm	Shell 2 Oly Ht mm
1	22	28	20	20
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:				
PLOT #	5	**Center Pt Latitude:**	47.8078	
		Center Pt Longitude:	122.863	
Start Time:	12:30			
			# Quadrats w/ no shell:	

QUADRAT # 3

Oly measured on →	Shell 13 Oly Ht mm	Shell 14 Oly Ht mm	Shell 15 Oly Ht mm	Shell 16 Oly Ht mm
1	20	29	25	28
2				15
3				
4				
5				
6				
7				
8				

QUADRAT # 3

Oly measured on →	Shell 17 Oly Ht mm	Shell 18 Oly Ht mm	Shell 19 Oly Ht mm	Shell 20 Oly Ht mm
1	15	13	25	18
2				
3				
4				
5				
6				
7				
8				

QUADRAT # 3

Oly measured on →	Shell 21 Oly Ht mm	Shell 22 Oly Ht mm	Shell 23 Oly Ht mm	Shell 24 Oly Ht mm
1	23	25	20	
2	20			
3				
4				
5				
6				
7				
8				

2

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:	Nancy Stevens,			
PLOT #	5	**Center Pt Latitude:**	47.8078	
		Center Pt Longitude:	122.863	
Start Time:				
			# Quadrats w/ no shell:	11

90°

QUADRAT # 3

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	15	20	22	17
2		23		
3		20		
4		15		
5				
6				
7				
8				

Same

QUADRAT #

Oly measured on →	Shell 5 Oly Ht mm	Shell 6- Oly Ht mm	Shell 7- Oly Ht mm	Shell 8 Oly Ht mm
1	15	16	20	25
2			20	
3				
4				
5				
6				
7				
8				

Same

QUADRAT #

Oly measured on →	Shell 9- Oly Ht mm	Shell 10 Oly Ht mm	Shell 11 Oly Ht mm	Shell 12 Oly Ht mm
1	15	10	30	20
2		16	25	
3		25	20	
4		10		
5		18		
6				
7				
8				

3RD TYCANSEA

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	5	**Center Pt Latitude:**	47.9078	
		Center Pt Longitude:	122.863	
Start Time:				
			# Quadrats w/ no shell:	

QUADRAT # (1)

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	12	18	15	30
2				20
3				20
4				15
5				
6				
7				
8				

Same

QUADRAT # (1)

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	28		
2	20	25		
3	20	25		
4				
5				
6				
7				
8				

QUADRAT # (2)

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	22	20	20	20
2				
3				
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date: 5/18/18			
Monitors:			
PLOT # 5 (3RD TRANSECT)	**Center Pt Latitude:**	47.8078	
	Center Pt Longitude:	122.863	
Start Time:			
		# Quadrats w/ no shell:	

QUADRAT # (2)

Oly measured on →	Shell 5 Oly Ht mm	Shell 6 Oly Ht mm	Shell 7 Oly Ht mm	Shell 8 Oly Ht mm
1	23	30	22	25
2		20	20	
3		25	16	
4			17	
5			21	
6				
7				
8				

QUADRAT # (Same)

Oly measured on →	Shell 9 Oly Ht mm	Shell 10 Oly Ht mm	Shell 11 Oly Ht mm	Shell 12 Oly Ht mm
1	32	10	13	18
2	15	12		
3	17	15		
4	10	17		
5	22	13		
6	18	10		
7				
8				

QUADRAT # (Same)

Oly measured on →	Shell 13 Oly Ht mm	Shell 14 Oly Ht mm	Shell 15 Oly Ht mm	Shell 16 Oly Ht mm
1	22	32	10	25
2	15	20		20
3	20			
4	20			
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:				
PLOT # 5		**Center Pt Latitude:**	47.8078	
		Center Pt Longitude:	122.863	
Start Time:				
			# Quadrats w/ no shell:	

Same

QUADRAT # (2)

Oly measured on →	Shell 1 Oly Ht mm	Shell 2 Oly Ht mm	Shell 3 Oly Ht mm	Shell 4 Oly Ht mm
1	28	25	25	15
2	30			
3	15			
4	15			
5	20			
6				
7				
8				

Same

QUADRAT # (2)

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20			
2				
3				
4				
5				
6				
7				
8				

New

QUADRAT # (3)

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	23	20	23
2			20	20
3			20	23
4			13	25
5			18	
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:				
PLOT # 5		**Center Pt Latitude:**	47.8078	
		Center Pt Longitude:	122.863	
Start Time:				
			# Quadrats w/ no shell:	

QUADRAT # 3

Oly measured on →	Shell 5 Oly Ht mm	Shell 6 Oly Ht mm	Shell 7 Oly Ht mm	Shell 8 Oly Ht mm
1	20	20	13	35
2	20	28	18	
3	18			
4	20			
5	13			
6				
7				
8				

same

QUADRAT #

Oly measured on →	Shell 9 Oly Ht mm	Shell 10 Oly Ht mm	Shell 11 Oly Ht mm	Shell 12 Oly Ht mm
1	10	20	20	25
2				15
3				
4				
5				
6				
7				
8				

same

QUADRAT #

Oly measured on →	Shell 13 Oly Ht mm	Shell 14 Oly Ht mm	Shell 15 Oly Ht mm	Shell 16 Oly Ht mm
1	25	15	20	23
2	20	15		18
3		15		22
4				
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING				
Date:	5/18/18			
Monitors:				
PLOT #	5	**Center Pt Latitude:**	47	
		Center Pt Longitude:	122	
Start Time:				
			# Quadrats w/ no shell:	
QUADRAT #				
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	10			
2	12			
3				
4				
5				
6				
7				
8				
QUADRAT #	2			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	18	20		
2		23		
3		25		
4				
5				
6				
7				
8				
QUADRAT #	3			
Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	20	26	28	10
2		22	10	
3		25	15	
4		23		
5				
6				
7				
8				

2018 QUILCENE BAY OLYMPIA OYSTER PLOT MONITORING

Date:	5/18/18			
Monitors:				
PLOT # 5		**Center Pt Latitude:**	47.8078	
		Center Pt Longitude:	122.863	
Start Time:				
			# Quadrats w/ no shell:	

QUADRAT # 3

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	11	20	15	20
2	12	14	18	
3	14			
4	25			
5	22			
6				
7				
8				

QUADRAT # 3

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1	15	32	25	24
2			25	
3			18	
4			25	
5			20	
6				
7				
8				

QUADRAT #

Oly measured on →	Shell 1- Oly Ht mm	Shell 2 - Oly Ht mm	Shell 3- Oly Ht mm	Shell 4- Oly Ht mm
1				
2				
3				
4				
5				
6				
7				
8				

Quilcene MRC Olympia Oyster Project

SIZE OF SPAT - 2018 Seeded Cultch.

Measuring Ht of 100 Olys on random shell

3-4 handfuls/bag mixed in bucket from 6 bags/plot

Recorder's Names: Anne S. Kathy W-S Shelley, Gregg, Sarah W		**Station Information**	
		Waterbody: Hood Canal	
Deployment Date:	8-10-18	Station Name: Quilcene	
Monitoring Date:	8-11-18	Lat (WGS 84):	
Time of ~~Low tide:~~ Start	10:30am	Long (WGS 84)	
TEST PLOT #	2018-1	Low tide predicted: 11:20am (-2.9)	

Olys only	length - mm	length - mm	length - mm	length - mm	length - mm
1	35	29	31	14	38
2	48	15	22	32	20
3	30	26	28	24	35
4	24	11	12	17	17
5	39	16	19	28	11
6	13	15	37	35	22
7	40	17	23	32	25
8	15	42	38	26	13
9	11	24	33	21	38
10	17	22	27	27	15
11	12	24	25	20	30
12	16	10	15	28	12
13	11	17	31	27	15
14	31	19	20	21	9
15	22	28	16	22	14
16	21	22	17	21	11
17	32	33	13	46	21
18	29	23	24	32	10
19	17	28	41	12	26
20	21	20	45	18	15

Quilcene MRC Olympia Oyster Project

SIZE OF SPAT - 2018 Seeded Cultch.

Measuring Ht of 100 Olys on random shell

3-4 handfuls/bag mixed in bucket from 6 bags/plot

Recorder's Names: Kathy & Glenn H, Sarah Fisher, Frank H	**Station Information**
	Waterbody: Hood Canal
Deployment Date:	Station Name: Quilcene
Monitoring Date: 8/11/18	Lat (WGS 84):
Time of Low tide: 10:45 am	Long (WGS 84)

TEST PLOT # 2018-2

Olys only	length - mm	length - mm	length - mm	length - mm	length - mm
1	34	10	31	30	17
2	42	16	22	16	15
3	16	32	34	22	11
4	17	29	24	22	24
5	15	28	11	18	25
6	15	22	29	22	24
7	11	31	30	31	27
8	25	11	20	36	21
9	12	33	11	31	36
10	16	31	21	8	20
11	31	37	19	8	19
12	19	36	13	16	26
13	23	18	31	18	37
14	8	11	18	18	23
15	20	36	11	8	31
16	20	30	23	33	28
17	33	18	18	26	32
18	21	30	16	24	15
19	13	29	31	34	20
20	33	31	17	39	24

Quilcene MRC Olympia Oyster Project
SPAT COUNT - 2018 Seeded Cultch.

Counting # of spat/shell for a random 10 shells/bag with 20 bags/plot

Recorder's Names: ANNES, KATHY W-S GREGG, CHERYL, SHELLEY, SARAH W	**Station Information**
	Waterbody: Hood Canal
Deployment Date: 8/10/18	Station Name: Quilcene
Monitoring Date: 8/11/18	Lat (WGS 84):
Time of Low tide: 10:30 AM	Long (WGS 84)
TEST PLOT # 2018-2	

Shell Sample #	Both sides # Olympias	# Pacifics	Shell Sample #	Both sides # Olympias	# Pacifics
1	1		31	4	
2	3		32	1	
3	2		33	Ø	4
4	4		34	5	1
5	1		35	4	
6	1		36	1	
7	1		37	2	
8	3	2	38	4	
9	4	2	39	4	
10	3		40	2	
11	3	2	41	3	
12	1		42	2	
13	9	1	43	Ø	3
14	1		44	4	
15	4		45	1	
16	6		46	4	
17	Ø		47	1	
18	3	1	48	6	
19	1		49	1	
20	1		50	2	
21	1		51	3	
22	5		52	4	
23	2		53	1	1
24	2		54	6	
25	1	1	55	3	
26	1	1	56	4	1
27	6	1	57	Ø	
28	3		58	1	
29	8		59	7	1
30	1		60	3	

Quilcene MRC Olympia Oyster Project
SPAT COUNT - 2018 Seeded Cultch.

Counting # of spat/shell for a random 10 shells/bag with 20 bags/plot

Recorder's Names: ANNE, KATHY W-S SHELLEY, GREGG, SARAH W	**Station Information**
	Waterbody: Hood Canal
Deployment Date: 8/10/18	Station Name: Quilcene
Monitoring Date: 8/11/18	Lat (WGS 84):
Time of ~~Low tide~~: 10:30 AM - 11:30 am	Long (WGS 84)

TEST PLOT # 2018-1 (Low Tide 11:20 am) (-2.9 predicted)

Shell Sample #	Both sides # Olympias	# Pacifics	Shell Sample #	Both sides # Olympias	# Pacifics
1	12		31	2	
2	1		32	1	
3	4		33	2	1
4	2		34	4	
5	2	2	35	1	
6	5	1	36	3	
7	2	2	37	~~1~~	1
8	1		38	7	2
9	1		39	1	1
10	3		40	Ø	
11	2	2	41	1	
12	Ø	1	42	3	
13	1		43	Ø	
14	2		44	4	1
15	Ø	1	45	1	1
16	Ø		46	2	
17	2		47	1	
18	Ø		48	1	
19	Ø		49	4	
20	4		50	Ø	
21	3		51	2	
22	2	1	52	4	
23	2	1	53	1	1
24	3	1	54	2	
25	2		55	Ø	
26	3		56	Ø	1
27	1		57	1	1
28	3	3	58	2	
29	5	1	59	2	
30	1	1	60	1	

Quilcene MRC Olympia Oyster Project
SPAT COUNT - 2018 Seeded Cultch.

Counting # of spat/shell for a random 10 shells/bag with 20 bags/plot

Recorder's Names: Kathy & Glenn Hartman, Sarah Fisher, Frank H.	**Station Information**
	Waterbody: Hood Canal
Deployment Date: 8/11/18	Station Name: Quilcene
Monitoring Date:	Lat (WGS 84):
Time of ~~Low tide~~ start: ~~10:45am~~ 10:45am Low tide - 11:20am	Long (WGS 84)
TEST PLOT # 2018-2	

Shell Sample #	Both sides # Olympias	# Pacifics	Shell Sample #	Both sides # Olympias	# Pacifics
1	5		31	4	
2	2		32	1	
3	4		33	4	
4	4		34	3	
5	3		35	1	
6	4		36	3	
7	1		37	2	
8	2		38	0	
9	2		39	12	
10	5		40	3	
11	0		41	3	
12	1		42	4	
13	5		43	1	
14	2		44	1	
15	2		45	2	
16	7		46	2	
17	2		47	1	
18	4		48	0	
19	1		49	1	
20	3		50	2	
21	2		51	3	
22	7		52	2	
23	1		53	0	
24	1		54	0	
25	1		55	1	
26	8		56	2	
27	3		57	0	
28	1		58	0	
29	0		59	0	
30	1		60	3	

Quilcene MRC Olympia Oyster Project

SIZE OF SPAT - 2018 Seeded Cultch.

Measuring Ht of 100 Olys on random shell

3-4 handfuls/bag mixed in bucket from 6 bags/plot

Recorder's Names: Anne S, Kathy W-S, Gregg, Shelley, Sarah W, Cheryl	**Station Information**
	Waterbody: Hood Canal
Deployment Date: 8-10-18	Station Name: Quilcene
Monitoring Date: 8-11-18	Lat (WGS 84):
Time of ~~Low tide~~ start: 10:30	Long (WGS 84)
TEST PLOT # 2018-23	Low Tide 11:20am (-2.9 predicted)

Olys only	length - mm	length - mm	length - mm	length - mm	length - mm
1	29	25	24	19	43
2	41	12	15	19	42
3	30	17	28	18	20
4	25	6	19	19	12
5	27	14	31	20	11
6	24	10	56	18	31
7	20	27	12	25	32
8	24	32	17	26	36
9	23	40	44	28	22
10	28	37	13	20	22
11	34	33	22	39	26
12	33	28	17	29	38
13	22	32	24	29	17
14	20	22	21	13	31
15	24	21	22	19	29
16	30	21	19	15	18
17	17	30	12	9	20
18	16	28	10	22	19
19	37	34	16	9	13
20	41	16	18	27	11