



Summary Report of the 2018 Commercial Fishery for Razor Clams (*Siliqua patula*)

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WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)
SUMMARY OF THE 2018 COMMERCIAL FISHERY
FOR RAZOR CLAMS (*Siliqua patula*)

Fishery Objectives and Preseason Planning

In anticipation of a commercial razor clam season in 2018, which was primarily due to low levels of domoic acid in razor clams collected on recreational beaches adjacent to the Willapa Spits, a public meeting was held in January at the Raymond High School. Major discussion topics covered during the meeting were the season opening date and duration, recent domoic acid closures and gear regulation changes.

This was the first public meeting in two years, recall in 2015 the season start date was changed from May 1 to April 1 and the season abruptly ended due to a domoic acid closure resulting in the recall of clams and a loss of over half of the season. Harvesters and clam buyers were excited that there may be some opportunity for harvest in 2018 but at the same time expressed concern about losing another season to a domoic acid closure. The April 1 season start date was revisited, poor weather conditions remained the greatest concern, after consideration the decision was made to continue with an April 1 opener. Department staff also sought recommendations for structuring season delays, extensions and possibly a fall season. The consensus was that WDFW should consider any and all options that would allow access to clams especially in light of the recent closures. Staff also presented proposed commercial gear rule changes at the meeting to make legal commercial gear defined under WAC 220-340-100 consistent with legal recreational razor clam gear by removing pick, mattock and fork and allowing the use of a clam gun or tube with a minimum diameter.

Fishery managers began conducting biotoxin sampling on the Willapa spits earlier than in previous years. Pre-season test results continued to show a decrease in domoic acid levels from February to the end of March. On March 23, 2018 WDFW announced the fishery would open on April 1, 2018 and run just over 8 weeks, ending on June 4, 2018. A season extension was announced on May 22, 2018 with a new ending date of July 18, 2018. Regulations for the commercial razor clam fishery allow digging only on “detached” (i.e. islands) spits. At the time of the extension, shifting sand filled in a channel of water that had separated the spits from the north end of Leadbetter Point. At low tide the southernmost spit and the northern end of Leadbetter Point essentially became continuous, and could be easily crossed. In the past when this has happened boundary poles have been installed at the north end of Leadbetter Point to provide a clear delineation between it and the spits. Again, boundary post were installed in 2018 to eliminate any uncertainty.

Biotoxin Sampling

Before the fishery opens the Washington Department of Health (DOH) protocols require two sets of razor clam samples be collected and results of the marine biotoxin tests must be below the federally established action levels. These sets of samples must be collected seven to ten days before the planned opener. Each sample collected must test below 20 parts per million (ppm) for domoic acid, below 80 micrograms per 100 grams of meat tested ($\mu\text{g}/100\text{g}$) for paralytic shellfish poisoning (PSP) and below 16 micrograms per 100 grams of meat tested for Diarrhetic Shellfish Poisoning (DSP). Monitoring of biotoxin levels continues once the fishery is underway with fishery samples collected from dealers every seven to ten days. Razor clams for pre-season biotoxin testing collected from one site on the spits in mid-April tested under the action levels (Table 1). Levels for all three toxins were low throughout the season and were not an issue.

Table 1. 2018 Commercial Razor Clam Fishery Biotoxin Results.

Collection Date	Sample Type	PSP Result ($\mu\text{g}/100\text{g}$)	Domoic Result (ppm)	DSP Result ($\mu\text{g}/100\text{g}$)
2/27/18	Pre-Season	-	10	-
3/07/18	Pre-Season	-	6	-
3/07/18	Pre-Season	-	6	-
3/13/18	Pre-Season	-	7	NTD
3/13/18	Pre-Season	-	6	NTD
3/20/18	Pre-Season	-	7	NTD
3/20/18	Pre-Season	-	3	NTD
4/03/18	Fishery Sample	<38	7	NTD
5/15/18	Fishery Sample	44	3	NTD
5/29/18	Fishery Sample	<38	4	NTD
6/15/18	Fishery Sample	39	3	NTD
7/10/18	Fishery Sample	<38	2	NTD

Fishing Season

The 2018 season opened as planned on April 1 and was scheduled to last just over eight weeks, ending on June 4th. Overall clam abundance and size was good throughout the season with some areas of the spits having an exceptional abundance of clams even at the higher tidal elevations. Locating areas with higher clam densities to dig and some poor weather days likely impacted landings and catch per unit of effort (CPUE) the first half of April. In poor weather some of the harvesters with larger boats can participate in the fishery but many that utilize small skiffs to access the spits cannot.

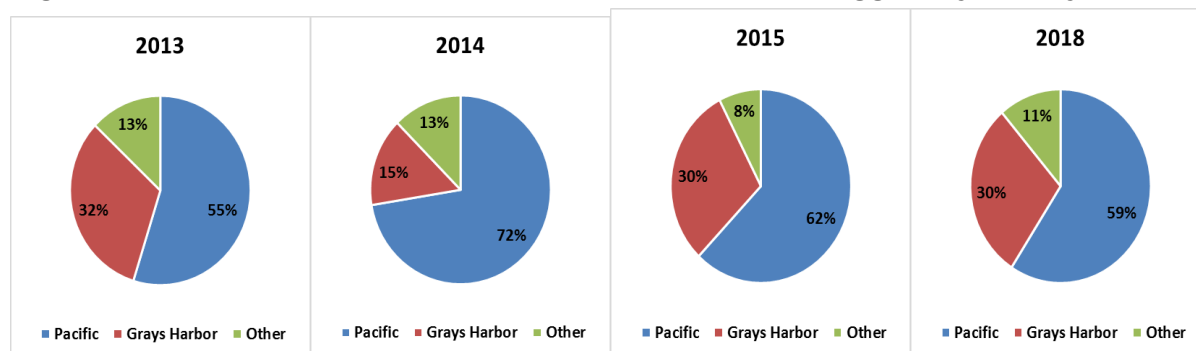
In May, fishery participants requested a season extension. Given that no harvest of clams occurred on the spits the previous two years the demand for clams in 2018 was very high. Therefore, buyers and diggers unanimously supported a season extension.

WDFW considered the industry request for an extension. Based on three factors; 1) digging opportunity lost to poor weather, 2) the stable CPUE during the season, and 3) willing buyers, WDFW allowed for a forty-four day extension, ending the fishery on July 18th.

Licenses

In 2018, 71 licenses were sold and of these, 64 were actively fished. This is a decrease from the 132 licenses sold in 2015 and the 145 licenses sold in 2014. The decrease in 2018 license holders (Table 2) was likely due to uncertainty of fishing opportunity to re-coup investment of time and money (i.e licenses, boat maintenance, gear) as a result of the early closure in 2015 and total loss of the 2016 and 2017 seasons due to domoic acid. Diggers that did participate in the 2018 season experienced the highest CUPE in recent history (Figure 3.). Given the success of the fishery this year, we expect participation to increase in 2019. As in past years, diggers were predominantly residents of Pacific (59%) and Grays Harbor (30%) counties (Figure 1).

Figure 1. Residence of Licensed Commercial Razor Clam Diggers by County (2013-2018).



*no licenses sold 2016-2017

Table 2. Residence of Licensed Commercial Razor Clam Diggers by County (2010-2018).

County	2010	2011	2012	2013	2014	2015	2018
Pacific	124	118	68	68	105	82	42
Grays Harbor	59	40	27	40	22	40	21
Other	24	16	10	16	18	10	8
Total	207	174	105	124	145	132	71

*no licenses sold 2016-2017

Fishery Landings

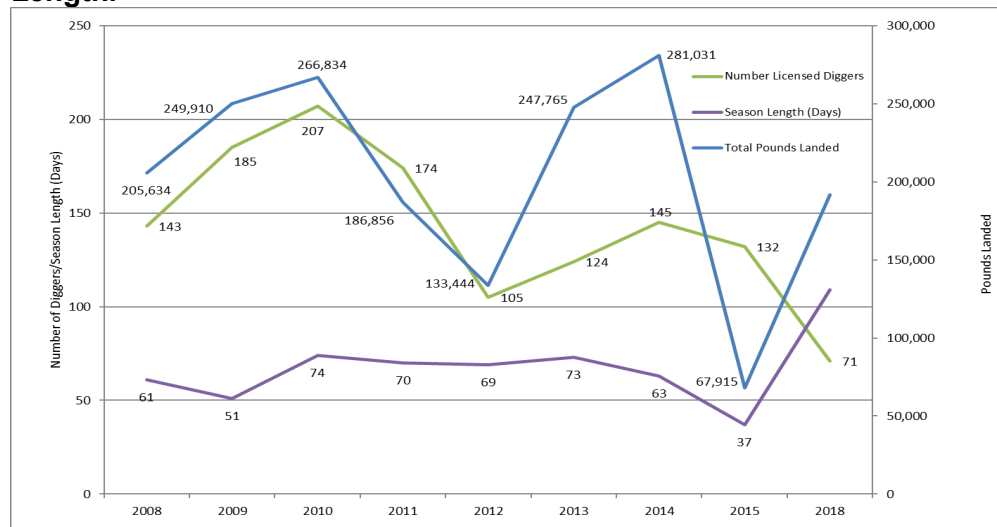
In total, the fishery landed 191,637 pounds of razor clams during the 109-day season which places it as the sixth highest season on record (Figure 2, Table 3). The total direct value to diggers (ex-vessel value) was \$473,746 which is the third highest value on record for this fishery. Prices paid during the 2018 season ranged from \$2.25 to \$2.90 per pound with an average price of \$2.47 per pound, which is highest average price on record. One reason for the higher average price in 2018 was attributed to the demand for bait clams due to the recent closures (2015-2017).

Clams were landed on 96 days of the 109 day season; on average 17 diggers each day landed about 117 pounds of clams per day (Figure 3). There were 162 personal use take home limits, comprising 9% of the 1,797 total landings. This is similar to the previous full season in 2014 where the percentage of take home limits was 7% of the 2,963 landings.

Table 3. Razor Clam Ex-Vessel Prices (per lb)

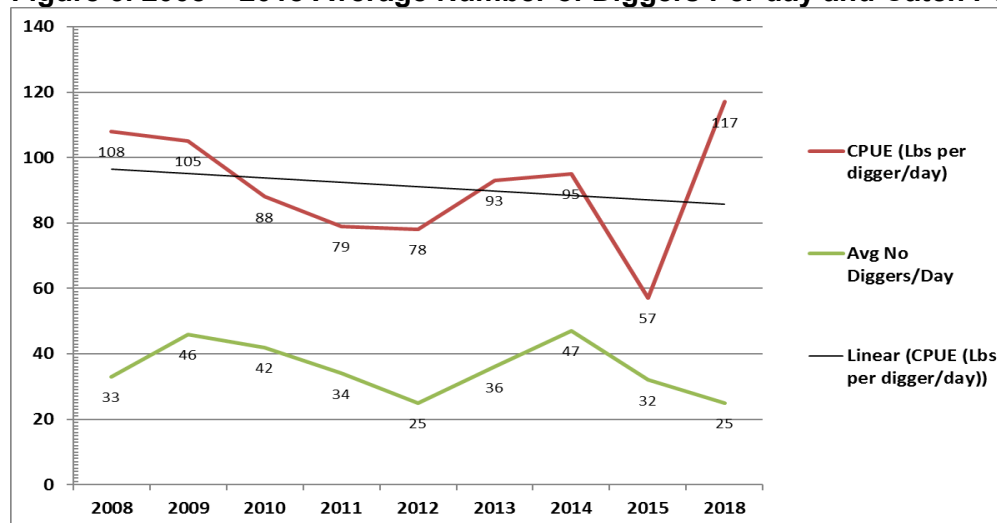
Year	Average Price (per lb)	Low	High
2008	\$ 1.73	-	-
2009	\$ 1.63	\$ 1.00	\$ 1.80
2010	\$ 1.62	\$ 1.00	\$ 1.85
2011	\$ 1.75	\$ 1.40	\$ 2.00
2012	\$ 1.97	\$ 1.50	\$ 2.50
2013	\$ 2.34	\$ 1.60	\$ 2.75
2014	\$ 1.99	\$ 1.25	\$ 2.40
2015	\$ 1.66	\$ 1.60	\$ 1.85
2016	N/A	-	-
2017	N/A	-	-
2018	\$ 2.48	\$ 2.25	\$ 2.90

Figure 2. 2008-2018 Total Pounds Landed vs. Number of Licensed Diggers and Season Length.



*no harvest 2016-2017

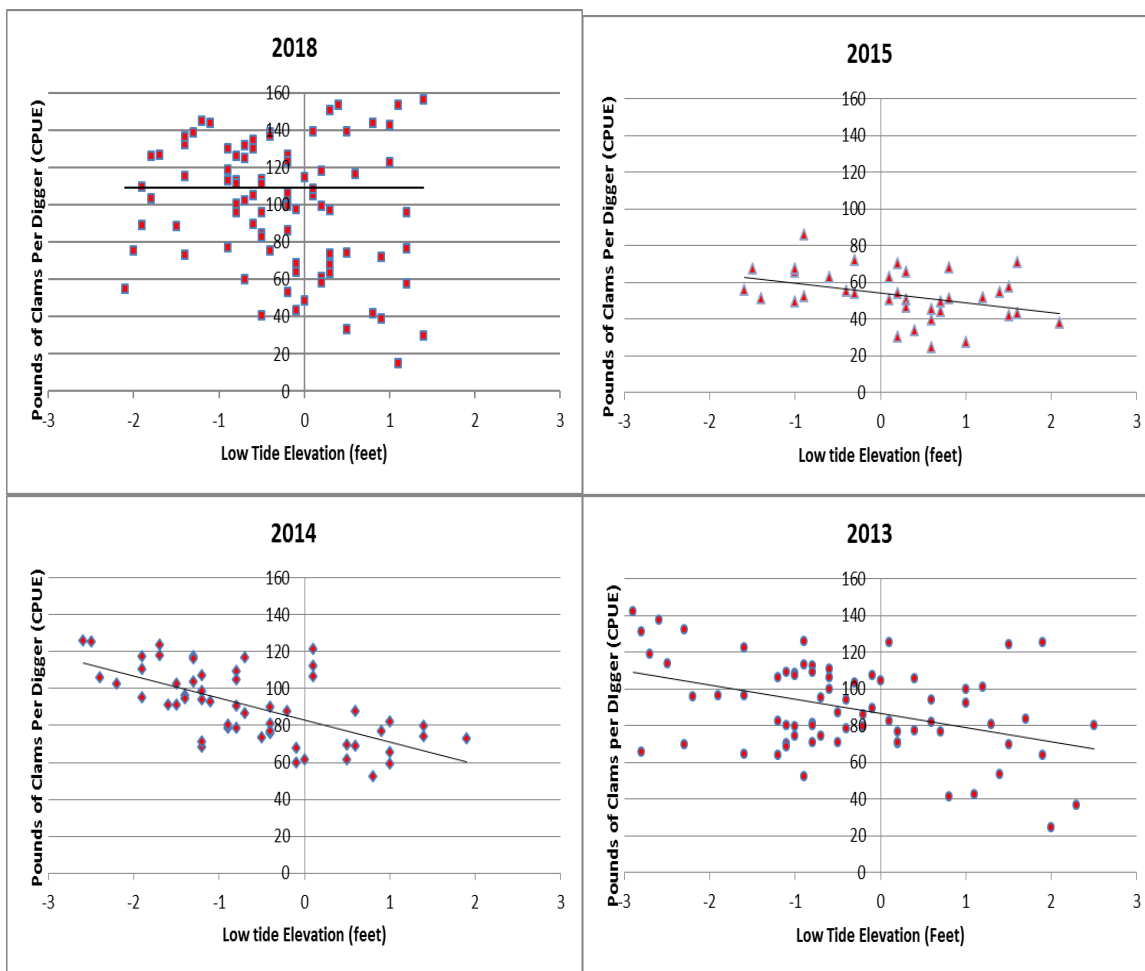
Figure 3. 2008 – 2018 Average Number of Diggers Per day and Catch Per Unit Effort



*no harvest 2016-2017

Discounting other factors such as weather or surf conditions, generally any tide less than +1.5 foot offers comparably good digging opportunity (Figure 4, Table 4). Interestingly in 2018 the catch per unit of effort (CPUE: in this case the total pounds of clams dug in one day divided by the number of diggers) did not differ as much as previous years on varying tidal heights, with some of the highest CPUE days occurring on tide heights greater than +1 feet. CPUE has fluctuated over the past years but the overall trend for those years as shown by the regression line fitted to the CPUE data (Figure 3) indicates the fishery is stable.

Figure 4. 2013-2018 Daily Pounds of Clams Dug per Person (CPUE) and Tide Elevation



*no harvest 2016-2017

Table 4. Commercial Razor Clam: Harvest Totals, Value, Season Length and Licenses.

Washington Non-Treaty Commercial Razor Clam Fishery									
Year	Pounds Landed	Ex-Vessel Value	Number			Non-Resident Licenses	License Revenue	License Fees	
			Days	Diggers	Licenses			Resident	Non-Resident
76	14,047	\$10,512		-	187		\$935	\$5	\$5
77	5,797	\$6,150		-	365		\$1,825	\$5	\$5
78	25,386	\$20,355		-	191		\$4,595	\$5	\$5
79	10,750	\$10,976		-	1,695		\$8,475	\$5	\$5
80	18,390	\$18,781	80	-	1,518		\$7,590	\$5	\$5
81	2,891	\$3,842	39	-	1,411		\$7,055	\$5	\$5
82	6,672	\$9,432	91	-	1,322		\$6,610	\$5	\$5
83	6,732	\$8,678	69	-	1,366		\$6,830	\$5	\$5
84	Nix Closure								
85	Nix Closure								
86	58,814	\$73,114	64	-	378	13	\$19,500	\$50	\$100
87	103	\$194	4	-	115	7	\$6,100	\$50	\$100
88	Closed due to low population levels								
89	20,140	\$35,161	28	-	205	2	\$10,350	\$50	\$100
90	26,553	\$48,073	36	-	290	6	\$14,800	\$50	\$100
91	26,630	\$44,106	42	-	267	8	\$13,750	\$50	\$100
92	Domoic Acid Closure								
93	Domoic Acid Closure								
94	46,854	\$59,487	40	-	95	3	\$12,500	\$130	\$180
95	88,290	\$109,364	38	-	127	0	\$16,510	\$130	\$180
96	25,188	\$29,295	37	-	110	1	\$14,350	\$130	\$180
97	2,849	\$3,579	21	-	28	3	\$3,790	\$130	\$180
98	4,485	\$6,558	24	-	40	0	\$5,200	\$130	\$180
99	Domoic Acid Closure								
00	69,595	\$84,106	51	-	79	0	\$10,270	\$130	\$180
01	75,744	\$77,439	47	62	97	0	\$12,610	\$130	\$180
02	119,777	\$118,349	46	97	105	0	\$13,650	\$130	\$180
03	17,474	\$21,169	18	40	44	0	\$5,720	\$130	\$180
04	183,327	\$269,139	68	112	114	0	\$14,820	\$130	\$180
05	102,939	\$154,746	41	112	115	3	\$15,490	\$130	\$180
06	134,661	\$199,469	64	103	110	0	\$14,300	\$130	\$180
07	140,616	\$211,118	55	119	122	1	\$16,040	\$130	\$180
08	205,634	\$355,705	61	108	143	0	\$18,590	\$130	\$180
09	249,910	\$407,130	51	164	185	4	\$24,250	\$130	\$180
10	266,834	\$431,519	74	184	207	2	\$27,010	\$130	\$180
11	186,856	\$327,022	70	155	174	3	\$22,770	\$130	\$180
12	133,444	\$262,611	69	104	105	2	\$24,785	\$235	\$290
13	247,765	\$579,159	73	121	124	2	\$29,250	\$235	\$290
14	281,031	\$559,552	63	135	145	0	\$34,075	\$235	\$290
15*	67,915	\$112,799	37	118	132	0	\$30,550	\$235	\$290
16	Domoic Acid Closure								
17	Domoic Acid Closure								
18	191,637	\$473,746	79	66	72	3	\$20,745	\$285	\$360

Table 5. 2018 Commercial Razor Clam: Daily Landings, Effort and Take Home Limits

Date	Day	Tide (ft)	Time	Number Landings	Daily Total Landings (lbs)	CPUE (lbs per digger/day)	Number Take Home Limits
4/1/2018	Sunday	-0.1	8:11	15	959	64	0
4/2/2018	Monday	-0.1	9:47	12	520	43	2
4/3/2018	Tuesday	-0.1	9:22	18	1235	69	1
4/4/2018	Wednesday	0.2	9:58	5	306	61	0
4/5/2018	Thursday	0.5	10:37	3	100	33	0
4/6/2018	Friday	0.9	11:33	14	549	39	0
4/9/2018	Monday	1.4	14:43	4	120	30	0
4/10/2018	Tuesday	1.1	15:40	1	15	15	0
4/14/2018	Saturday	0.9	6:20	3	216	72	0
4/15/2018	Sunday	0.3	7:02	12	888	74	1
4/16/2018	Monday	-0.2	7:43	5	267	53	0
4/17/2018	Tuesday	-0.5	8:24	10	409	41	0
4/18/2018	Wednesday	-0.7	9:06	18	1078	60	2
4/19/2018	Thursday	-0.5	9:51	23	1949	85	3
4/20/2018	Friday	-0.2	10:41	23	2280	99	5
4/21/2018	Saturday	-0.2	11:40	20	2092	105	7
4/22/2018	Sunday	0.1	12:48	24	3343	139	0
4/23/2018	Monday	0.3	15:06	16	1553	97	2
4/24/2018	Tuesday	0.2	16:03	17	1689	99	0
4/25/2018	Wednesday	0.3	16:54	8	544	68	0
4/27/2018	Friday	0.6	5:27	1	162	162	0
4/28/2018	Saturday	0	6:16	12	582	49	1
4/29/2018	Sunday	-0.4	7:01	14	1058	76	1
4/30/2018	Monday	-0.6	7:43	20	2104	105	2
5/1/2018	Tuesday	-0.6	8:23	33	2969	90	1
5/2/2018	Wednesday	-0.5	9:01	29	2408	83	3
5/3/2018	Thursday	-0.2	9:38	28	3550	127	3
5/4/2018	Friday	0.1	10:14	25	2634	105	4
5/5/2018	Saturday	0.4	10:54	18	2765	154	2
5/6/2018	Sunday	0.8	11:41	8	1581	198	1
5/7/2018	Monday	1.1	12:37	12	1842	154	0
5/8/2018	Tuesday	1.2	13:38	9	1461	162	0
5/9/2018	Wednesday	1.2	14:38	2	192	96	0
5/11/2018	Friday	1.2	16:19	1	58	58	0
5/12/2018	Saturday	1	5:07	16	2287	143	0
5/13/2018	Sunday	0.2	5:53	22	2599	118	0
5/14/2018	Monday	-0.4	6:38	22	3054	139	1

5/15/2018	Tuesday	-0.9	7:23	35	4165	119	6
5/16/2018	Wednesday	-1.3	8:08	32	4445	139	5
5/17/2018	Thursday	-1.4	8:54	34	4501	132	4
5/18/2018	Friday	-1.4	9:41	31	4232	137	5
5/19/2018	Saturday	-1.1	10:32	36	5185	144	0
5/20/2018	Sunday	-0.7	11:26	31	5591	180	3
5/21/2018	Monday	-0.2	12:26	30	5421	181	4
5/22/2018	Tuesday	0.2	13:29	16	2938	184	1
5/23/2018	Wednesday	0.5	14:31	19	2650	139	4
5/24/2018	Thursday	0.8	15:27	8	1150	144	2
5/25/2018	Friday	1	16:18	2	355	178	0
5/26/2018	Saturday	0.1	5:11	18	1957	109	2
5/27/2018	Sunday	-0.4	5:59	25	3426	137	1
5/28/2018	Monday	-0.7	6:43	32	4221	132	3
5/29/2018	Tuesday	-0.8	7:25	33	4165	126	3
5/30/2018	Wednesday	-0.8	8:03	29	2788	96	2
5/31/2018	Thursday	-0.7	8:40	28	3499	125	1
6/1/2018	Friday	-0.5	9:14	19	2154	113	3
6/2/2018	Saturday	-0.2	9:48	29	4875	168	3
6/3/2018	Sunday	0	10:23	27	4770	177	1
6/4/2018	Monday	0.3	11:01	19	2866	151	1
6/5/2018	Tuesday	0.6	11:45	8	931	116	1
6/6/2018	Wednesday	1	12:36	19	2334	123	1
6/7/2018	Thursday	1.2	13:36	3	230	77	0
6/10/2018	Sunday	0.5	4:37	4	298	75	0
6/11/2018	Monday	-0.2	5:27	18	2222	123	0
6/12/2018	Tuesday	-0.9	6:17	23	2996	130	3
6/13/2018	Wednesday	-1.4	7:05	10	734	73	1
6/14/2018	Thursday	-1.8	7:54	28	3530	126	3
6/15/2018	Friday	-1.9	8:42	22	2406	109	3
6/16/2018	Saturday	-1.8	9:29	21	2168	103	0
6/17/2018	Sunday	-1.4	10:17	22	2532	115	6
6/18/2018	Monday	-0.9	11:07	15	1693	113	1
6/19/2018	Tuesday	-0.3	11:59	14	2445	175	0
6/20/2018	Wednesday	0.3	12:54	14	2487	178	2
6/21/2018	Thursday	0.9	13:51	12	1991	166	0
6/22/2018	Friday	1.4	14:48	4	626	157	0
6/24/2018	Sunday	-0.1	4:52	16	1563	98	4
6/25/2018	Monday	-0.5	5:41	17	1630	96	0
6/26/2018	Tuesday	-0.7	6:25	29	2973	103	1
6/27/2018	Wednesday	-0.8	7:06	22	2492	113	0
6/28/2018	Thursday	-0.8	7:43	27	2710	100	3

6/29/2018	Friday	-0.8	8:19	19	2112	111	1
6/30/2018	Saturday	-0.6	8:52	16	2154	135	1
7/1/2018	Sunday	-0.5	9:23	19	2115	111	4
7/2/2018	Monday	-0.2	9:54	7	744	106	2
7/3/2018	Tuesday	0	10:26	12	1379	115	3
7/4/2018	Wednesday	0.3	11:02	3	190	63	0
7/5/2018	Thursday	0.8	11:45	3	126	42	1
7/9/2018	Monday	0.2	4:08	3	175	58	0
7/10/2018	Tuesday	-0.6	5:06	14	1821	130	0
7/11/2018	Wednesday	-1.2	5:58	19	2759	145	2
7/12/2018	Thursday	-1.7	6:49	23	2918	127	4
7/13/2018	Friday	-2	7:38	24	1812	76	6
7/14/2018	Saturday	-2.1	8:26	19	1045	55	2
7/15/2018	Sunday	-1.9	9:11	21	1870	89	2
7/16/2018	Monday	-1.5	9:56	14	1240	89	2
7/17/2018	Tuesday	-0.9	10:40	15	1156	77	3
7/18/2018	Wednesday	-0.2	11:26	3	258	86	1
Regular Season Totals				1638	191796	117	159

Commercial Sales and Trends

Commercial buyers must be certified by the Washington Department of Health to purchase razor clams and the certification is renewed annually. Buyers must also have a WDFW wholesale dealer license and all razor clams purchased must be documented on shellfish receiving tickets. Typically, five to six companies register to buy razor clams each year. Most dealers are established wholesale seafood businesses in Pacific and Grays Harbor counties that operate year-round in various fisheries and they purchase the majority of clams. In addition, some wholesale buyers are simply individuals that have obtained the required licenses and certification to purchase razor clams only. Typically these dealers are commercial Dungeness crab fishers buying razor clams for bait. Generally there are two to three buyers that fit these criteria each season.

Dungeness crab fishers favor razor clams as bait because they are a natural food source of crabs and keep well in crab pot bait cans. While the majority of the harvested clams are still sold as crab bait, this percentage has varied over the past few years as more and more clams are destined to the fresh market. In 2012 the percentage sold fresh was around 9%, in 2014 this increased to around 25% and in 2018 was also around 25%.

Wholesalers point out the market for fresh razor clams are limited by their narrow 2-3 day shelf life and because profitability to the wholesaler is held in check by other razor clams entering the market. These other sources include the Quinault Indian Nation and clams coming from both Canada and Alaska. For some buyers the main benefit in purchasing razor clams comes from keeping their work crews employed during a typically slow time of year and providing superior quality bait to the commercial crabbers who fish in the winter months.

Management Conclusions

In recent years, dealers have tried to take advantage of stable seasons and strong production to develop retail markets locally and overseas however closures due to domoic acid have caused major disruptions in maintaining and increasing market development. In addition, the fishery provides an important economic bridge between crab and salmon seasons for both dealers and diggers. Within the constraints posed by population abundance and biotoxin levels, management of the fishery will continue to promote season predictability to support marketing opportunities for human consumption and to provide a reliable source of bait for the Dungeness crab fishery.