

Washington Razor Clam Management



Setting the 2015-2016 Season

The following presentation is designed to provide you with general information on the management of the recreational razor clam fishery in Washington and specific information on what to expect for the 2015 -16 season.

Thanks for taking the time to view this presentation. Any specific comments or questions can be directed to : razorclams@dfw.wa.gov



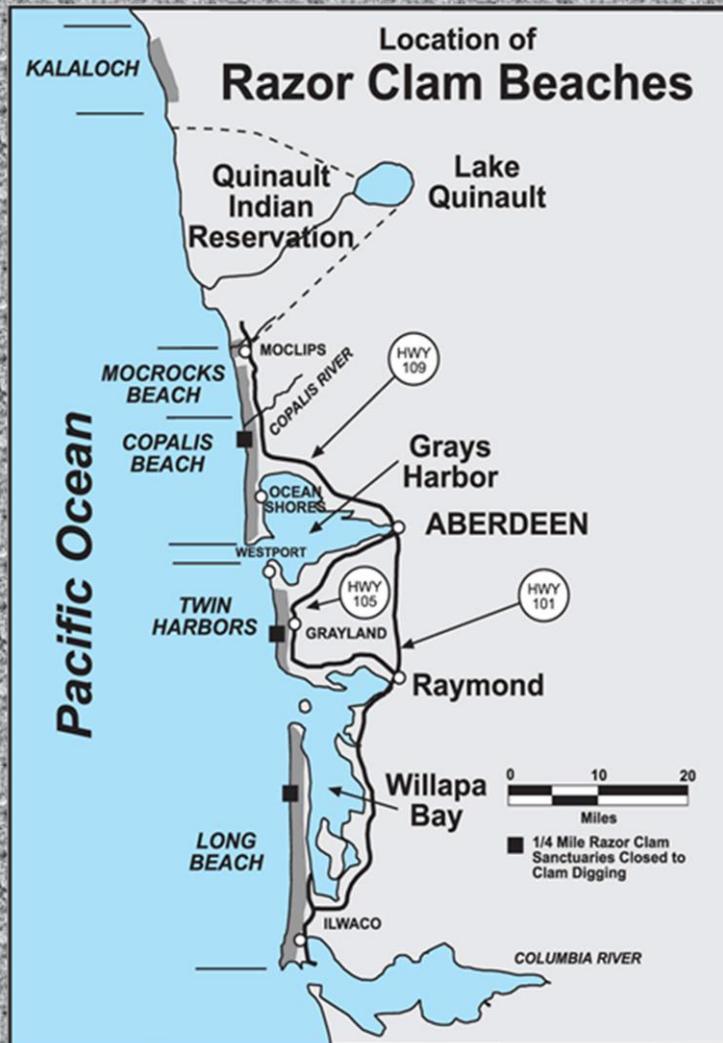
What's Up?

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As most razor clam enthusiasts know, the 2014-15 season was cut short by a harmful algal bloom that produced elevated levels of domoic acid in razor clam tissue. WDFW has continued collecting razor clam samples for testing by the Washington Department of Health throughout the summer of 2015. You will find more detail on our website at: <http://wdfw.wa.gov/news/may1315b/>

At the time of this posting, razor clams sampled from all Washington beaches continue to test with elevated levels of domoic acid. As a result it is not possible to predict when razor clam harvest will resume of Washington's coastal beaches. However, in anticipation of a future opener we want to share with you the following information and seek your input on how to best set future seasons.



Washington's razor clam habitat is divided into five management beaches. From the south, they are: Long Beach (from the Columbia River North Jetty to end of Leadbetter Point); Twin Harbors (from the northern shore of Willapa Bay to the Grays Harbor South Jetty); Copalis (from the Grays Harbor North Jetty to the Copalis River); Mocrocks (from the Copalis River to the south boundary of the Quinault Indian Reservation – just south of the Moclips River); Kalaloch (from Olympic National Park South Beach Campground to Brown's Point, just south of Olympic National Park Beach Trail # 3). Within these five management beaches there are a total of 58 miles of sandy beaches and prime habitat for the Pacific Razor Clam (*Siliqua patula*).



The razor clam fishery in Washington is not only a significant source of revenue for tourism-dependent businesses such as restaurants and motels, but also an important source of community identity and basis for tribal subsistence. Razor clam harvesting, cleaning, cooking, eating, and canning have been an important focus of family relationships and local culture in Washington coastal communities for many generations.

FISH AND WILDLIFE COMMISSION
POLICY DECISION

POLICY TITLE:	Razor Clam Management	POLICY NUMBER:	POL-C3009
Cancels:		Effective Date	January 4, 1997
		Termination Date	(if applicable):
See Also:		Approved by:	<u>/s/ Lisa Pelly</u> Fish and Wildlife Commission Chair

The management objectives for the razor clam fishery are:

- Manage the razor clam resource on all coastal beaches for recreational use with a minor separate commercial fishery located only on detached spits of Willapa Bay.
 - Protect public health and safety.
 - Manage the resource to maintain stable and healthy populations.
 - Maximize recreational opportunity.
 - Provide a quality recreational experience.
 - Independently manage the razor clam populations on Kalaloch (*in cooperation with Olympic National Park*), Mocrocks, Copalis, Twin Harbors and Long Beach while considering the pertinent interactions of seasons, effort, opportunity and tribal allocations.
 - Provide for consistent commercial fishing opportunity that does not conflict with the recreational fishery.
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The fishery is managed by WDFW staff with specific guidance provided by the Washington Fish and Wildlife Commission; nine citizen members serving six-year terms who are appointed by the governor and confirmed by the Washington State Senate. For more information see: <http://wdfw.wa.gov/commission/>

In it's Policy C3009 the Fish and Wildlife Commission has provided seven objectives WDFW uses in managing this fishery.

Note that the management of the recreational razor clam fishery at Kalaloch occurs in cooperation with the Olympic National Park.

2014-2015 Fishery Review



Average of
14.4 clams
per digger
trip



Total
harvest
of 5.7
million
clams



397,000
digger
trips

From the start of the 2014-15 recreational razor clam season, we knew that the number of razor clams (and correspondingly the Total Allowable Catch values for most beaches) was very strong. We expected to be able to offer a lot of digging opportunities. The first several months saw many more digging opportunities than a typical season, especially at Long Beach and Twin Harbors. We were also able to offer a dig during the popular New Year's eve period when over 45,000 diggers trips were made! However, an unexpected increase in a naturally occurring marine toxin (domoic acid) in late April resulted in an emergency fishery closure and the loss of most of the digging days planned for May, the final month of the season.

Washington Recreational Razor Clam

<i>20014-15 Season Totals</i>	HARVEST	EFFORT	Average Daily Catch (clams/digger)	Total Digging Days
Long Beach	2,421,393	163,929	14.8	104
Twin Harbors	1,701,101	118,403	14.4	104
Copalis	802,720	58,626	13.7	21
Mocrocks	831,281	58,739	14.2	43
Kalaloch	0	0		0
TOTAL	5,756,495	399,698	14.4	

Each of the five beaches is managed separately. The Total Allowable Catch (TAC) is determined for each beach using data collected in our annual summer razor clam stock assessment work (discussed more in the slides ahead). As a result, some beaches have more digging opportunities than others. The average daily catch during the 2014-15 season was close to the legal daily bag limit of 15 clams per person. It is always a good sign when over the course of the entire season most diggers can take home their limit of 15 razor clams - even with some occasional tough weather challenges. Note that the harvest listed here includes our estimates of wastage. The CPUE is calculated on the estimate of harvest, minus wastage.



Washington Recreational Razor Clam Fishery

Days Open for Harvest / Season

Beach	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2007-08	2006-07	2005-06	2004-05	average
Long Beach	104	72	42	23	35	37	22	22	21	21	23	38
Twin Harbors	104	105	78	26	46	46	27	40	30	26	25	50
Copalis	21	24	28	13	15	24	24	11	7	18	25	19
Mocrocks	43	54	30	20	30	23	25	11	16	26	25	28
Kalaloch	0	0	0	3	12	17	0	0	11	18	8	6

Looking at the number of days open for digging over time (on each beach) it is clear that the 2014-15 season was exceptional for most all beaches. We offered more day of digging at Long Beach than we have in over 25 years with same true at Twin Harbors – except for last season. Had the closure not occurred, it is expected there could have been as many as 10 more days of harvest, on at least some beaches.



Washington Recreational Razor Clam Total Effort By Season 1997/98 through 2014/15



We estimate there were a total of 397,000 digger trips during the 2014-15 season. Had the domoic acid closure not occurred on May 7, it is expected there could have been as many as 10 more days of harvest, with an estimated 90,000 diggers trips added.

2014-2015 State (non-Indian) Recreational Razor Clam Effort, Harvest and CPUE totals.

DATE	DAY	TIDE	TIME	LONG BEACH			TWIN HARBORS			COPALIS			MOCROCKS			KALALOCH			DAILY TOTALS		
				Effort	Harvest	CPUE	Effort	Harvest	CPUE	Effort	Harvest	CPUE	Effort	Harvest	CPUE	Effort	Harvest	CPUE	Effort	Harvest	
7-Oct	Tue	-0.5	6:26 PM	1,633	24,500	15.0	1,486	22,289	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	3,119	46,789
8-Oct	Wed	-0.9	7:13 PM	1,665	24,527	14.7	1,763	26,450	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	3,428	50,977
9-Oct	Thu	-1.1	7:58 PM	1,726	25,890	15.0	1,310	17,842	13.6	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	3,036	43,732
10-Oct	Fri	-1.1	8:43 PM	2,633	37,784	14.3	2,090	29,947	14.3	CLOSED	CLOSED	CLOSED	1,222	16,041	13.1	CLOSED	CLOSED	CLOSED	CLOSED	5,946	83,771
11-Oct	Sat	-0.8	9:28 PM	1,397	9,249	6.6	484	4,169	8.6	2,206	8,635	3.9	2,126	24,230	11.4	CLOSED	CLOSED	CLOSED	CLOSED	6,213	46,283
12-Oct	Sun	-0.3	10:15 PM	635	8,872	14.0	504	7,032	13.9	CLOSED	CLOSED	CLOSED	295	3,766	12.8	CLOSED	CLOSED	CLOSED	CLOSED	1,434	19,670
Tide Series Totals				9,690	130,821	13.5	7,638	107,729	14.1	2,206	8,635	3.9	3,643	44,037	12.1					23,177	291,222
22-Oct	Wed	0.3	6:31 PM	219	0	0.0	381	265	0.7	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	600	265
23-Oct	Thu	-0.1	7:07 PM	524	7,861	15.0	771	10,874	14.1	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,295	18,735
24-Oct	Fri	-0.4	7:44 PM	892	12,716	14.3	1,019	11,570	11.4	CLOSED	CLOSED	CLOSED	1,499	20,420	13.6	CLOSED	CLOSED	CLOSED	CLOSED	3,411	44,706
25-Oct	Sat	-0.6	8:22 PM	124	0	0.0	43	0	0.0	196	0	0.0	203	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	567	0
26-Oct	Sun	-0.6	9:03 PM	101	1,510	15.0	212	3,180	15.0	CLOSED	CLOSED	CLOSED	380	5,700	15.0	CLOSED	CLOSED	CLOSED	CLOSED	693	10,390
27-Oct	Mon	-0.4	9:47 PM	59	897	15.1	92	1,270	13.8	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	151	2,167
28-Oct	Tue	-0.2	10:36 PM	10	0	0.0	15	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	25	0
Tide Series Totals				1,929	22,984	11.9	2,533	27,160	10.7	196	0	0.0	2,083	26,120	12.5					6,741	76,264
4-Nov	Tue	1.2	3:36 AM	798	11,971	15.0	1,096	16,499	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,894	28,410
5-Nov	Wed	-0.7	5:14 PM	477	7,162	15.0	894	13,417	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,371	20,578
6-Nov	Thu	-1.1	5:59 PM	696	10,436	15.0	905	13,304	14.7	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,601	23,740
7-Nov	Fri	-1.2	6:42 PM	2,757	39,768	14.4	1,487	22,312	15.0	CLOSED	CLOSED	CLOSED	1,064	15,960	15.0	CLOSED	CLOSED	CLOSED	CLOSED	5,309	78,039
8-Nov	Sat	-1.1	7:24 PM	2,525	35,242	14.0	2,340	33,278	14.2	3,128	42,243	13.5	1,948	27,588	14.2	CLOSED	CLOSED	CLOSED	CLOSED	9,941	138,351
9-Nov	Sun	-0.7	8:05 PM	171	2,571	15.0	159	2,523	15.9	CLOSED	CLOSED	CLOSED	729	7,838	10.8	CLOSED	CLOSED	CLOSED	CLOSED	1,059	12,932
10-Nov	Mon	-0.3	8:47 PM	171	2,571	15.0	159	2,384	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	330	4,955
11-Nov	Tue	0.2	9:31 PM	61	897	14.7	56	847	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	117	1,745
Tide Series Totals				7,656	110,618	14.4	7,097	104,503	14.7	3,128	42,243	13.5	3,741	51,386	13.7					21,622	308,750

Presented here is the Washington recreational razor clam season day by day estimates of effort, harvest and CPUE (catch per unit of effort). Page 1 of 4.

2014-2015 State (non-Indian) Recreational Razor Clam Effort, Harvest and CPUE totals.

20-Nov	Thu	0.0	5:06 PM	433	6,375	14.7	1,034	15,198	14.7	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,467	21,573	
21-Nov	Fri	-0.5	5:45 PM	251	1,756	7.0	303	909	3.0	CLOSED	CLOSED	CLOSED	640	4,579	7.2	CLOSED	CLOSED	CLOSED	1,194	7,244
22-Nov	Sat	-0.8	6:24 PM	683	6,405	9.4	1,334	12,687	9.5	2,125	20,605	9.7	1,283	19,250	15.0	CLOSED	CLOSED	CLOSED	5,424	58,947
23-Nov	Sun	-1.0	7:05 PM	370	5,551	15.0	367	3,604	9.8	CLOSED	CLOSED	CLOSED	429	6,390	14.9	CLOSED	CLOSED	CLOSED	1,166	15,545
24-Nov	Mon	-1.1	7:47 PM	121	197	1.6	95	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	216	197
25-Nov	Tue	-0.9	8:32 PM	173	1,835	10.6	338	3,634	10.8	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	511	5,489
26-Nov	Wed	-0.5	9:19 PM	173	1,835	10.6	338	3,634	10.8	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	511	5,489
Tide Series Totals				2,204	23,953	10.9	3,808	39,666	10.4	2,125	20,605	9.7	2,352	30,219	12.8				10,490	114,443
3-Dec	Wed	-0.1	4:14 PM	824	12,364	15.0	674	10,111	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,498	22,475
4-Dec	Thu	-0.6	5:02 PM	830	12,453	15.0	610	9,076	14.9	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,440	21,528
5-Dec	Fri	-0.9	5:45 PM	846	12,691	15.0	761	11,411	15.0	CLOSED	CLOSED	CLOSED	961	14,418	15.0	CLOSED	CLOSED	CLOSED	2,566	38,520
6-Dec	Sat	-1.0	6:26 PM	1,083	15,925	14.7	886	12,991	14.7	1,192	15,362	12.9	1,410	20,966	14.9	CLOSED	CLOSED	CLOSED	4,571	65,245
7-Dec	Sun	-0.9	7:06 PM	70	1,053	15.0	294	3,114	10.6	CLOSED	CLOSED	CLOSED	347	5,210	15.0	CLOSED	CLOSED	CLOSED	711	9,377
8-Dec	Mon	-0.6	7:44 PM	70	1,053	15.0	294	3,114	10.6	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	364	4,166
9-Dec	Tue	-0.2	8:21 PM	0	0	0.0	0	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	0	0
10-Dec	Wed	0.2	8:58 PM	0	0	0.0	0	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	0	0
Tide Series Totals				3,724	55,538	14.9	3,518	49,817	14.2	1,192	15,362	12.9	2,719	40,595	14.9				11,152	161,312
19-Dec	Fri	0.0	4:41 PM	1,267	13,707	10.8	550	3,878	7.0	CLOSED	CLOSED	CLOSED	910	5,940	6.5	CLOSED	CLOSED	CLOSED	2,727	23,526
20-Dec	Sat	-0.6	5:23 PM	1,267	0	0.0	275	0	0.0	782	69	0.1	454	0	0.0	CLOSED	CLOSED	CLOSED	2,778	69
21-Dec	Sun	-1.1	6:06 PM	743	11,149	15.0	738	9,386	12.7	CLOSED	CLOSED	CLOSED	872	13,087	15.0	CLOSED	CLOSED	CLOSED	2,354	33,622
22-Dec	Mon	-1.3	6:48 PM	633	8,907	14.1	275	2,520	9.2	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	909	11,427
23-Dec	Tue	-1.3	7:31 PM	633	8,907	14.1	275	2,520	9.2	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	909	11,427
Tide Series Totals				4,545	42,671	9.4	2,114	18,305	8.7	782	69	0.1	2,237	19,027	8.5				8,768	68,644
31-Dec	Wed	0.6	3:05 PM	5,186	59,297	11.4	2,070	30,311	14.6	2,956	44,344	15.0	1,992	29,885	15.0	CLOSED	CLOSED	CLOSED	12,204	163,837
1-Jan	Thu	0.2	4:01 PM	3,826	57,295	15.0	2,198	32,968	15.0	3,456	51,838	15.0	2,947	44,212	15.0	CLOSED	CLOSED	CLOSED	12,428	186,313
2-Jan	Fri	-0.2	4:49 PM	2,940	44,105	15.0	2,043	30,648	15.0	2,411	33,253	13.8	1,198	17,959	15.0	CLOSED	CLOSED	CLOSED	8,593	125,965
3-Jan	Sat	-0.5	5:32 PM	5,796	53,497	9.2	1,791	25,909	14.5	3,146	47,280	15.0	1,581	23,689	15.0	CLOSED	CLOSED	CLOSED	12,314	150,375
4-Jan	Sun	-0.5	6:12 PM	154	616	4.0	66	548	8.3	CLOSED	CLOSED	CLOSED	98	392	4.0	CLOSED	CLOSED	CLOSED	318	1,556
5-Jan	Mon	-0.5	6:48 PM	19	0	0.0	66	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	84	0
6-Jan	Tue	-0.3	7:23 PM	413	2,503	6.1	176	2,225	12.6	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	589	4,727
7-Jan	Wed	-0.1	7:57 PM	103	1,548	15.0	122	1,504	12.4	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	225	3,052
Tide Series Totals				18,437	218,862	11.9	8,531	124,112	14.5	11,969	176,715	14.8	7,817	116,135	14.9				46,754	635,825

Presented here is the Washington recreational razor clam season day by day estimates of effort, harvest and CPUE (catch per unit of effort). Page 2 of 4.

2014-2015 State (non-Indian) Recreational Razor Clam Effort, Harvest and CPUE totals.

17-Jan	Sat	0.1	4:15 PM	1,105	16,325	14.8	1,317	11,633	8.8	1,990	23,136	11.6	1,278	17,233	13.5	CLOSED	CLOSED	CLOSED	5,690	66,328
18-Jan	Sun	-0.6	5:02 PM	1,180	17,697	15.0	1,061	15,912	15.0	CLOSED	CLOSED	CLOSED	2,382	29,732	12.5	CLOSED	CLOSED	CLOSED	4,623	63,342
19-Jan	Mon	-1.1	5:47 PM	3,049	45,897	15.1	2,366	35,484	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	5,415	81,381
20-Jan	Tue	-1.4	6:30 PM	215	3,076	14.3	172	2,456	14.3	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	387	5,532
21-Jan	Wed	-1.4	7:13 PM	455	6,804	14.9	568	8,523	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,024	15,327
22-Jan	Thu	-1.1	7:56 PM	94	1,414	15.0	118	1,794	15.3	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	212	3,208
23-Jan	Fri	-0.6	8:40 PM	326	4,883	15.0	221	761	3.4	CLOSED	CLOSED	CLOSED	189	578	3.1	CLOSED	CLOSED	CLOSED	735	6,223
24-Jan	Sat	0.1	9:25 PM	662	8,078	12.2	320	1,738	5.4	414	6,208	15.0	398	5,977	15.0	CLOSED	CLOSED	CLOSED	981	22,002
Tide Series Totals				7,085	104,176	14.7	6,142	78,302	12.7	2,404	29,344	12.2	4,247	53,521	12.6				19,066	265,342
30-Jan	Fri	0.5	3:43 PM	1,920	27,880	14.5	1,115	16,725	15.0	CLOSED	CLOSED	CLOSED	2,439	36,715	15.1	CLOSED	CLOSED	CLOSED	5,474	81,320
31-Jan	Sat	0.2	4:32 PM	4,369	65,534	15.0	1,928	15,664	8.1	3,380	50,700	15.0	2,745	41,175	15.0	CLOSED	CLOSED	CLOSED	12,422	173,073
1-Feb	Sun	0.0	5:15 PM	178	2,672	15.0	106	1,590	15.0	CLOSED	CLOSED	CLOSED	238	2,971	12.5	CLOSED	CLOSED	CLOSED	522	7,234
2-Feb	Mon	-0.1	5:53 PM	417	6,254	15.0	589	8,813	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,006	15,067
3-Feb	Tue	-0.1	6:27 PM	333	4,835	14.5	125	1,700	13.6	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	458	6,535
4-Feb	Wed	0.0	6:59 PM	140	2,095	15.0	297	3,923	13.2	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	437	6,019
5-Feb	Thu	0.2	7:30 PM	0	0	0.0	0	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	0	0
6-Feb	Fri	0.5	8:00 PM	0	0	0.0	0	0	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	0	0
Tide Series Totals				7,356	109,270	14.9	4,161	48,417	11.6	3,380	50,700	15.0	5,422	80,861	14.9				20,319	289,248
15-Feb	Sun	0.2	3:47 PM	6,300	94,499	15.0	6,860	103,186	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	13,160	197,685
16-Feb	Mon	-0.5	4:37 PM	4,972	74,577	15.0	5,414	81,204	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	10,385	155,781
17-Feb	Tue	-0.9	5:24 PM	2,321	34,813	15.0	2,572	37,083	14.4	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	4,892	71,896
18-Feb	Wed	-1.1	6:08 PM	2,032	30,476	15.0	2,251	33,447	14.9	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	4,283	63,923
19-Feb	Thu	-1.1	6:51 PM	2,032	30,476	15.0	2,251	33,447	14.9	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	4,283	63,923
20-Feb	Fri	-0.7	7:33 PM	3,706	54,801	14.8	1,103	15,041	13.6	CLOSED	CLOSED	CLOSED	1,885	28,282	15.0	CLOSED	CLOSED	CLOSED	6,695	96,125
21-Feb	Sat	-0.1	8:16 PM	3,161	47,412	15.0	1,519	21,322	14.0	2,960	43,529	14.7	1,331	19,967	15.0	CLOSED	CLOSED	CLOSED	8,971	132,229
22-Feb	Sun	0.6	9:00 PM	761	11,411	15.0	264	3,960	15.0	CLOSED	CLOSED	CLOSED	350	5,243	15.0	CLOSED	CLOSED	CLOSED	1,374	20,614
Tide Series Totals				25,283	378,465	15.0	22,233	328,689	14.8	2,960	43,529	14.7	3,566	53,492	15.0				54,043	804,175
2-Mar	Mon	0.5	4:49 PM	950	14,251	15.0	1,274	19,104	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,224	33,355
3-Mar	Tue	0.4	5:26 PM	800	12,000	15.0	901	13,512	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,701	25,512
4-Mar	Wed	0.4	5:59 PM	1,114	16,715	15.0	1,235	18,395	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,349	35,110
5-Mar	Thu	0.5	6:30 PM	476	7,144	15.0	536	7,767	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,013	14,911
Tide Series Totals				3,341	50,111	15.0	3,945	58,777	14.9										7,286	108,888

Presented here is the Washington recreational razor clam season day by day estimates of effort, harvest and CPUE (catch per unit of effort). Page 3 of 4.

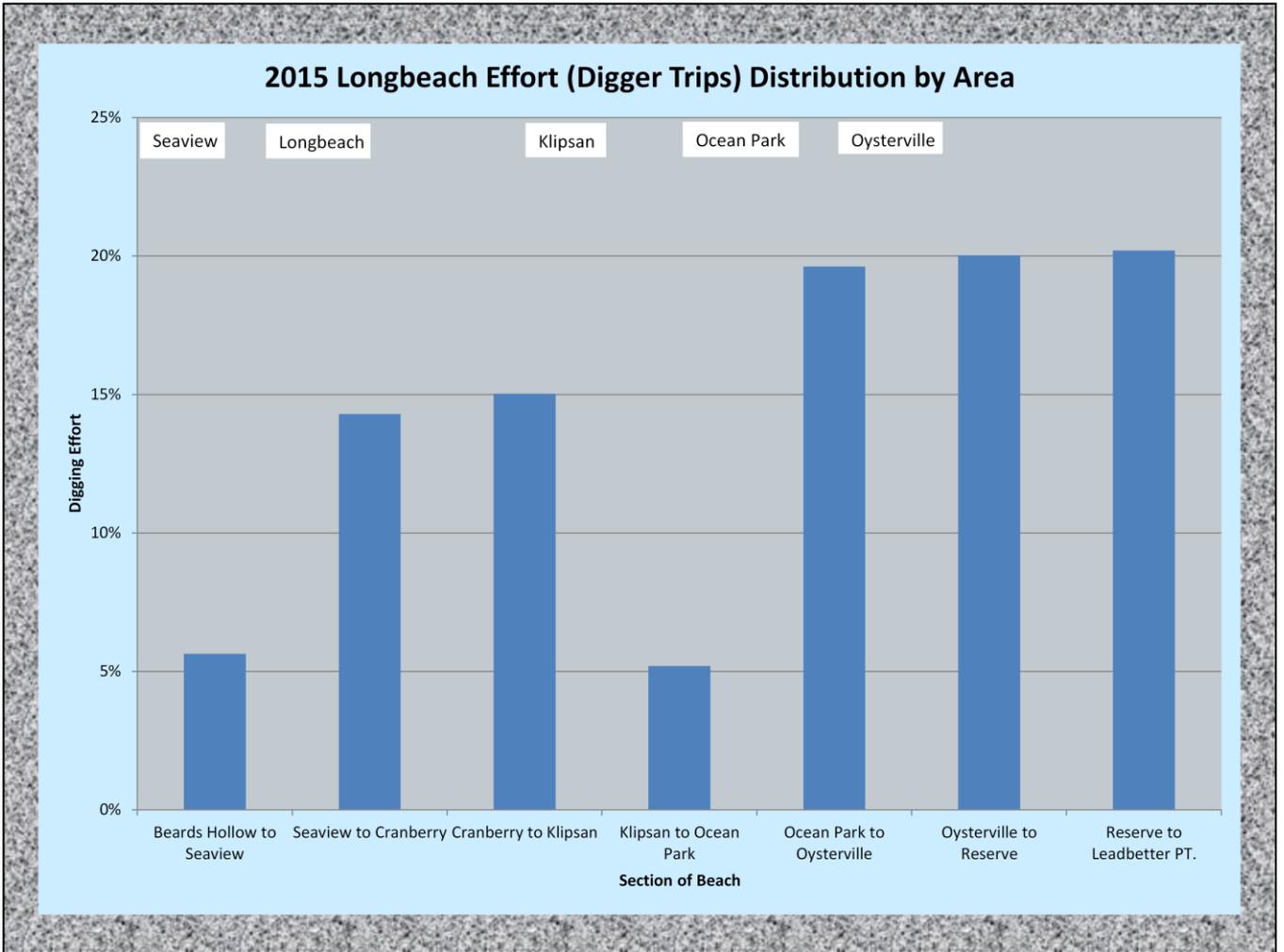
2014-2015 State (non-Indian) Recreational Razor Clam Effort, Harvest and CPUE totals.

16-Mar	Mon	0.3	4:15 PM	664	9,958	15.0	748	11,213	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,411	21,171	
17-Mar	Tue	-0.2	5:08 PM	868	13,033	15.0	977	14,170	14.5	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,845	27,204	
18-Mar	Wed	-0.5	5:57 PM	1,253	18,795	15.0	1,411	20,434	14.5	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,664	39,228	
19-Mar	Thu	-0.5	6:42 PM	1,253	18,795	15.0	1,411	20,434	14.5	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,664	39,228	
20-Mar	Fri	-0.4	7:26 PM	5,074	65,250	12.9	2,586	32,139	12.4	4,545	62,814	13.8	2,996	39,011	13.0	CLOSED	CLOSED	CLOSED	15,201	199,215
21-Mar	Sat	-0.5	7:55 AM	8,824	132,355	15.0	5,519	62,061	11.2	7,524	104,687	13.9	3,140	47,100	15.0	CLOSED	CLOSED	CLOSED	25,007	346,222
22-Mar	Sun	-0.7	8:42 AM	6,762	101,428	15.0	2,909	40,685	14.0	4,417	64,495	14.6	3,097	45,703	14.8	CLOSED	CLOSED	CLOSED	17,186	252,312
23-Mar	Mon	-0.6	9:31 AM	1,037	12,771	12.3	1,151	13,633	11.8	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,188	26,403	
24-Mar	Tue	-0.3	10:21 AM	2,063	30,829	14.9	2,323	33,517	14.4	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	4,387	64,346	
Tide Series Totals				27,798	403,213	14.5	19,035	248,305	13.0	16,486	231,996	14.1	9,233	131,814	14.3				72,552	1,015,330
4-Apr	Sat	0.6	7:23 AM	2,086	31,296	15.0	1,470	19,334	13.2	2,097	15,848	7.6	1,463	19,427	13.3	CLOSED	CLOSED	CLOSED	7,116	85,905
5-Apr	Sun	0.3	7:57 AM	1,529	22,967	15.0	827	12,420	15.0	1,432	21,534	15.0	1,223	18,125	14.8	CLOSED	CLOSED	CLOSED	5,011	75,046
6-Apr	Mon	0.1	8:32 AM	198	2,908	14.7	743	9,663	13.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	941	12,571	
7-Apr	Tue	0.1	9:09 AM	1,140	17,106	15.0	1,312	19,685	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,453	36,791	
8-Apr	Wed	0.1	9:48 AM	1,692	25,081	14.8	1,556	23,109	14.8	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	3,248	48,190	
9-Apr	Thu	0.2	10:32 AM	1,488	22,319	15.0	1,712	25,683	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	3,200	48,002	
10-Apr	Fri	0.4	11:23 AM	2,146	30,198	14.1	1,879	23,072	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	4,024	53,270	
Tide Series Totals				10,279	151,875	14.8	9,499	132,966	14.0	3,529	37,382	10.6	2,686	37,552	14.0				25,993	359,775
17-Apr	Fri	-0.2	6:03 AM	1,121	10,138	9.0	757	7,631	10.1	CLOSED	CLOSED	CLOSED	883	12,235	13.9	CLOSED	CLOSED	CLOSED	2,761	30,005
18-Apr	Sat	-0.9	6:52 AM	7,778	116,675	15.0	3,218	47,303	14.7	4,044	60,660	15.0	3,268	49,015	15.0	CLOSED	CLOSED	CLOSED	18,308	273,653
19-Apr	Sun	-1.3	7:39 AM	10,767	161,499	15.0	2,974	44,615	15.0	4,226	63,385	15.0	2,651	39,768	15.0	CLOSED	CLOSED	CLOSED	20,618	309,267
20-Apr	Mon	-1.5	8:25 AM	4,491	64,803	14.4	3,010	37,983	12.6	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	7,501	102,786	
21-Apr	Tue	-1.3	9:11 AM	2,840	42,606	15.0	2,777	39,476	14.2	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	5,618	82,082	
22-Apr	Wed	-0.9	9:57 AM	1,573	23,591	15.0	1,064	14,680	13.8	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,637	38,271	
23-Apr	Thu	-0.4	10:46 AM	1,025	15,190	14.8	621	7,642	12.3	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,646	22,832	
24-Apr	Fri	0.2	11:38 AM	775	11,301	14.6	995	14,924	15.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	1,770	26,225	
Tide Series Totals				30,370	445,804	14.7	15,415	214,254	13.9	8,270	124,045	15.0	6,802	101,018	14.9				60,857	885,120
2-May	Sat	0.2	6:23 AM	1,513	22,693	15.0	838	12,567	15.0	CLOSED	CLOSED	CLOSED	1,101	16,519	15.0	CLOSED	CLOSED	CLOSED	3,452	51,779
3-May	Sun	-0.3	6:59 AM	1,378	20,667	15.0	905	13,581	15.0	CLOSED	CLOSED	CLOSED	1,090	16,349	15.0	CLOSED	CLOSED	CLOSED	3,373	50,597
Tide Series Totals				2,891	43,360	15.0	1,743	26,148	15.0				2,191	32,869	15.0				6,825	102,376
7-May	Thu	-0.8	9:30 AM	1,342	20,126	0.0	990	14,845	0.0	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	2,331	34,971	
Tide Series Totals				1,342	20,126		990	14,845											2,331	34,971
<i>early closure due to elevated levels of domoic acid in razor clam tissue</i>																				
SEASON SUBTOTALS:				163,929	2,311,847	14.1	118,403	1,621,994	13.7	58,626	780,625	13.3	58,739	818,645	13.9	0	0		399,698	5,533,112
WASTAGE					109,546			79,107			22,095			12,636						223,384
SEASON TOTALS:				163,929	2,421,393	14.8	118,403	1,701,101	14.4	58,626	802,720	13.7	58,739	831,281	14.2	0	0		399,698	5,756,496
% of TAC Harvested:					62.3%			63.9%			90.2%			37.1%						0.0%

Presented here is the Washington recreational razor clam season day by day estimates of effort, harvest and CPUE (catch per unit of effort). Page 4 of 4.

Month	Long Beach	
October 2014	13 Days	Tue-Sun; Wed-Tue
November 2014	15 Days	Tue-Tue; Thu-Wed
December 2014	14 Days	Wed-Wed; Fri-Tues; Wed
January 2015	17 Days	Thu-Wed; Sat-Sat; Fri-Sat
February 2015	14 Days	Sun-Fri; Sun-Sun
March 2015	13 Days	Mon-Thu; Mon-Tue;
April 2015	15 Days	Sat-Fri; Fri-Fri
May 2014	3 Days	Sat-Sun; Thu
Totals:	104 Days	

At Long Beach you have to go back to 1979 to find a season with more digger trips and the total number of clams harvested. In that year (1979) there were 231,000 digger trips and 2.7 million clams harvested. Looking back from 1979 one needs to go back to 1966 to find another season that beats the 2014-15 season!



This graph presents the data we collect to make estimates of the total number of diggers during each low tide that is open. The data is presented as the portion of the total effort distributed across the full beach, over the entire season.



A Snowy Plover nests in the dry sand.

Watch for nesting birds

Nesting season for two federally protected shorebirds – the Snowy Plover and the Streaked Horned Lark – begins in spring when thousands of razor clam diggers are also on the beach. Wildlife managers ask that diggers take care to avoid disturbing these small birds by steering clear of their nesting areas. Both species are listed as threatened under the federal Endangered Species Act.

A Streaked Horned Lark chick sits in the dunes.



Watch your step: It would be easy to trample this Streaked Horned Lark nest and never know it.

For more information, contact:

Washington Dept. of Fish and Wildlife
48 Devonshire Rd.
Montesano WA 98563
(360) 249-4628



Razor Clamming and Nesting Birds

How you can help protect Snowy Plovers and Streaked Horned Larks



Conflicts between razor clam enthusiasts and endangered nesting shore birds continues to be an important issue for resource managers. This is especially true on the razor clam beaches that are adjacent to critical nesting areas. These include the south end of the Twin Harbors beach and the northern portion of Long Beach. During the 2014-15 season WDFW developed a pamphlet designed to inform razor clam diggers of step they can take to avoid impacting *snowy plovers* and *streaked horned larks*. Razor clam diggers need t heed the closed area signs to help avoid further restrictions.



RAZOR CLAM DIGGING IS A HIGHLY POPULAR pursuit that draws hundreds of thousands of people to Washington's coastal beaches every year. Most diggers can harvest their limit of clams in an hour or two and still have plenty of time to enjoy beachcombing, kite-flying and a wide range of other surfside activities.

While on the beach, clam diggers should be aware that two bird species – the Snowy Plover and the Streaked Horned Lark – nest in the soft sand above the high tide line. Both birds are listed as threatened under the federal Endangered Species Act.

Normal nesting season generally runs from April 1 through September 15. During this time, it is very easy to disturb the birds and their vulnerable young.

How to protect nesting birds

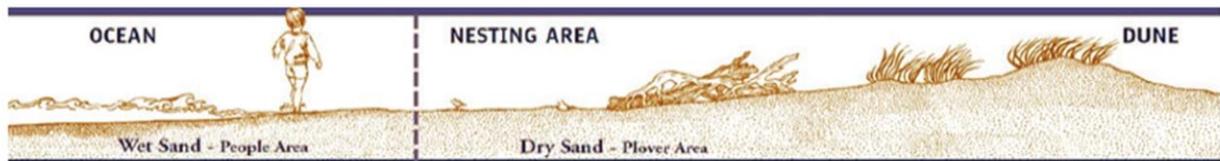
- **Beach driving:** When driving to clam-digging areas, enter the beach only at designated access points and stay on the hard-packed sand below or near the high tide line.
- **Follow the rules:** Observe all agency regulations, and never walk past "nesting birds" signs into the upper parts of the beach.
- **Keep dogs on a leash:** Don't allow your dog to play in the dunes or soft sand where birds may be nesting.
- **Avoid the dunes:** Birds often nest in these areas. If you need to take a break from clam digging, use the restrooms located at most beach-access points.
- **Kites:** Do not fly kites near nesting areas. To small shorebirds, kites look like predators.
- **Move on:** Limit the amount of time you spend near nesting areas. Once you've finished digging, move to another location.



PRIME NESTING AREAS

Active nesting areas for Snowy Plovers and Streaked Horned Larks have been identified on parts of Twin Harbors Beach and on the Long Beach Peninsula near Leadbetter Point.

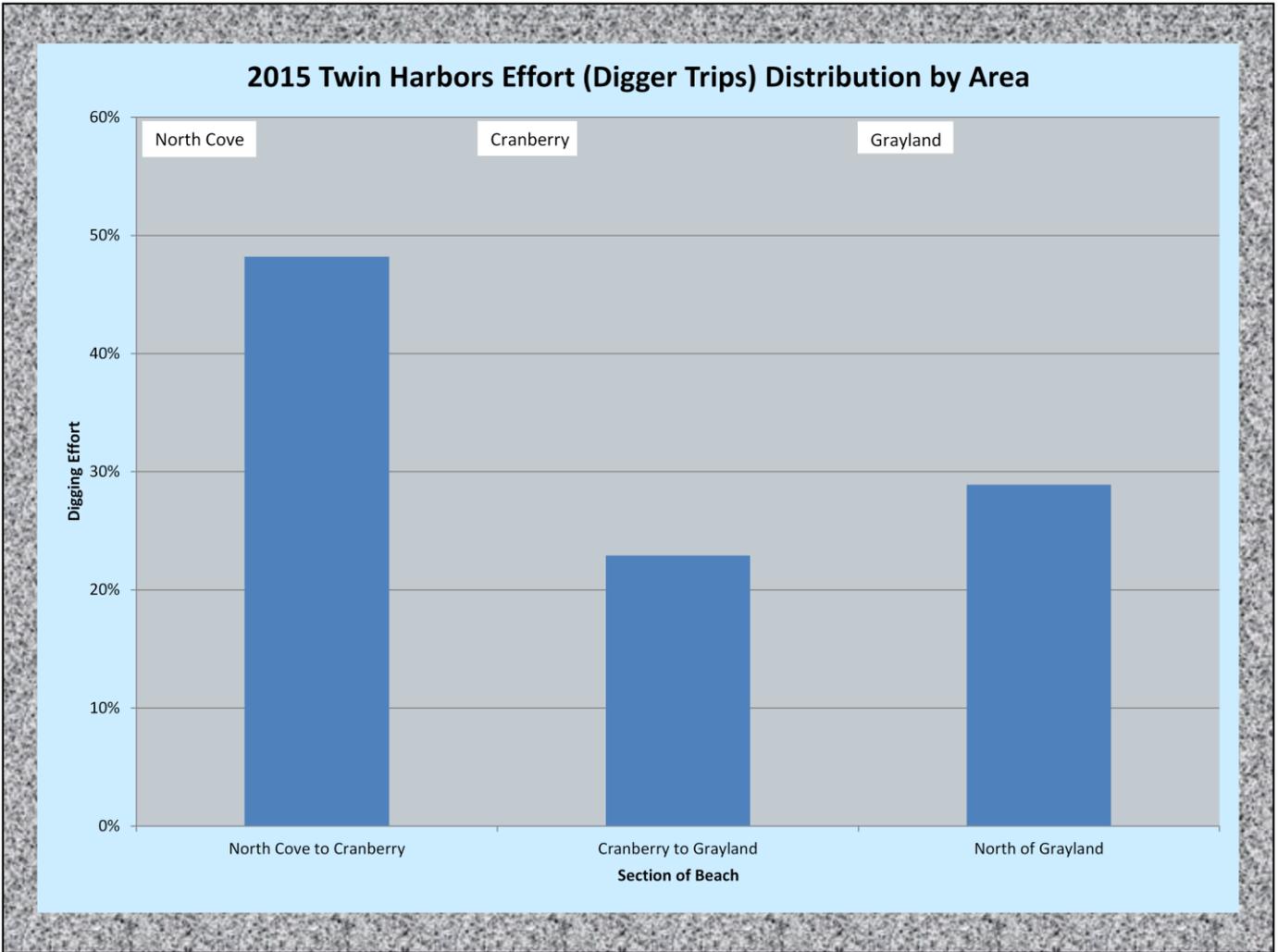
Wildlife managers urge clam diggers to take special care to avoid disturbing nesting birds in these areas.



To help mitigate impacts of birds in these sensitive areas shellfish managers agreed to reduce the number of planned digging days during the month of May 2015 – restricting digging to weekend days only on Twin Harbors and Long Beach. Diggers may not have realized this modification because an unrelated increase in domoic acid levels in razor clams closed all digging on May 7. Diggers are encouraged to download the plover pamphlet at; http://wdfw.wa.gov/fishing/shellfish/razorclams/clam_digging_snowy_plovers.pdf Feel free to make copies of this document and distribute them to your clammy friends or from your business.

Month	Twin Harbors	
October 2014	13 Days	Tue-Sun; Wed-Tue
November 2014	15 Days	Tue-Tue; Thu-Wed
December 2014	14 Days	Wed-Wed; Fri-Tues; Wed
January 2015	17 Days	Thu-Wed; Sat-Sat; Fri-Sat
February 2015	14 Days	Sun-Fri; Sun-Sun
March 2015	13 Days	Mon-Thu; Mon-Tue;
April 2015	15 Days	Sat-Fri; Fri-Fri
May 2014	3 Days	Sat-Sun; Thu
Totals:	104 Days	

During the 2014-15 season, Twin Harbors enjoyed 104 days of digging, more days in one season in over 20 years. In addition, not since 1967 have more clams been harvested on the Twin Harbors beach. All of that is true, even though during the 2014-15 season, only 63.0% of the Twin Harbors Total Allowable Catch was harvested.



This graph presents the data we collect to make estimates of the total number of diggers during each low tide that is open. The data is presented as the portion of the total effort distributed across the full beach, over the entire season.

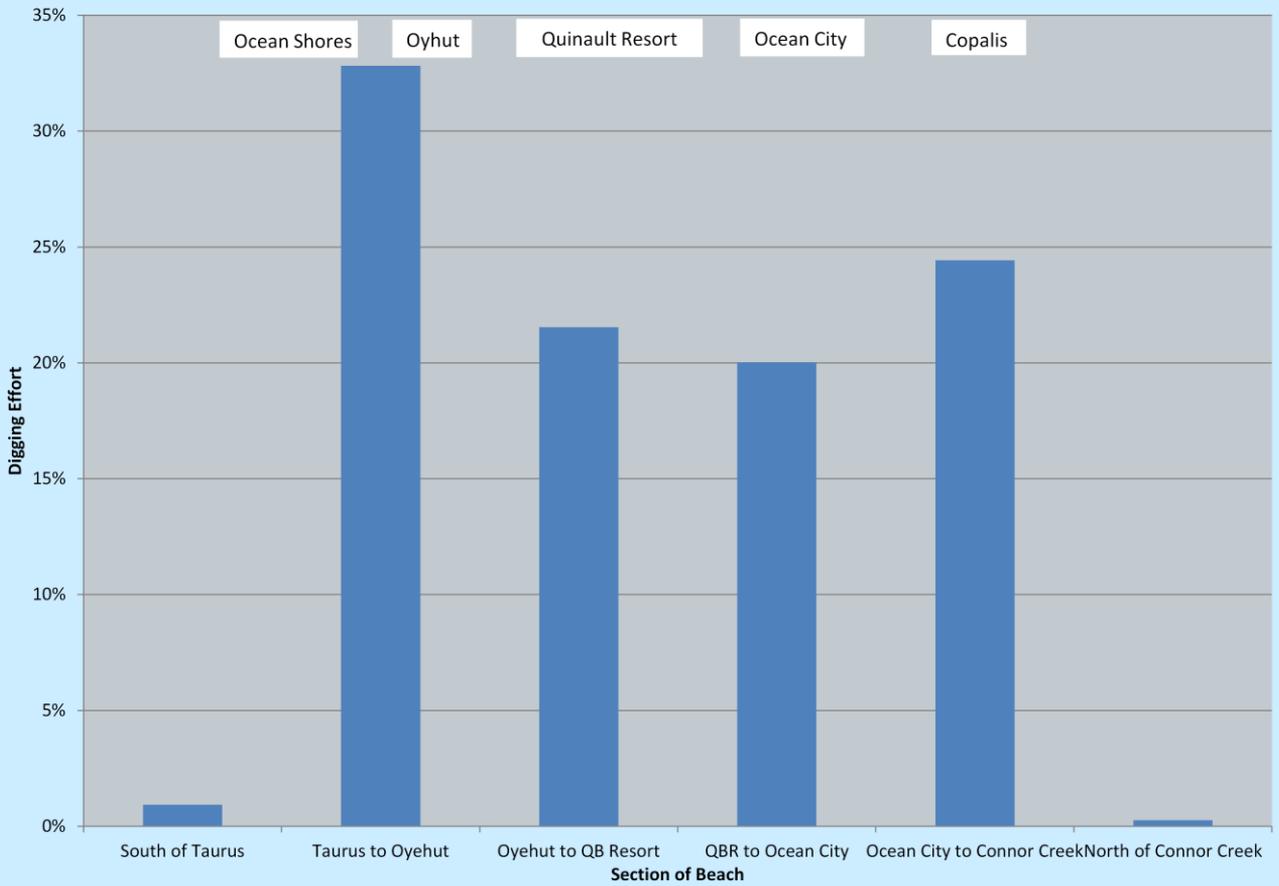
Month	Copalis	
October 2014	2 Days	Fri; Sat
November 2014	2 Days	Sat; Sat
December 2014	3 Days	Sat; Sat; Wed
January 2015	6 Days	Thu-Sat; Sat; Sat; Sat
February 2015	1 Days	Sat
March 2015	3 Days	Fri-Sun
April 2015	4 Days	Sat, Sun; Sat, Sun
May 2015	0 Days	
Totals:	21 Days	

As many are aware, the Copalis razor clam management beach is one of three beaches WDFW co-manages with tribal governments. The Quinault Indian Nation (QIN) has federally adjudicated fishing rights on this beach and we share the total allowable catch (TAC) 50/50 with the QIN. More details on state/tribal co-management of razor clams in Washington are found later in this presentation.

Late in the 2012-13 season while reviewing state harvest totals on Copalis and Mocrocks, a biometrician discovered an error in the calculations used by the state to estimate the daily recreational harvest. Biologists determined this error had gone undetected for a number of years and resulted in the reporting of harvest totals that in general underestimate the true total – on all beaches.

Since that time WDFW and the Quinault Indian Nation (QIN) have come to an agreement on a five-year schedule WDFW will use to return to a portion of the clams that were inadvertently dug in excess of the state's harvest share from Copalis and Mocrocks.

Copalis Effort Distribution by Area



This graph presents the data we collect to make estimates of the total number of diggers during each low tide that is open. The data is presented as the portion of the total effort distributed across the full beach, over the entire season.

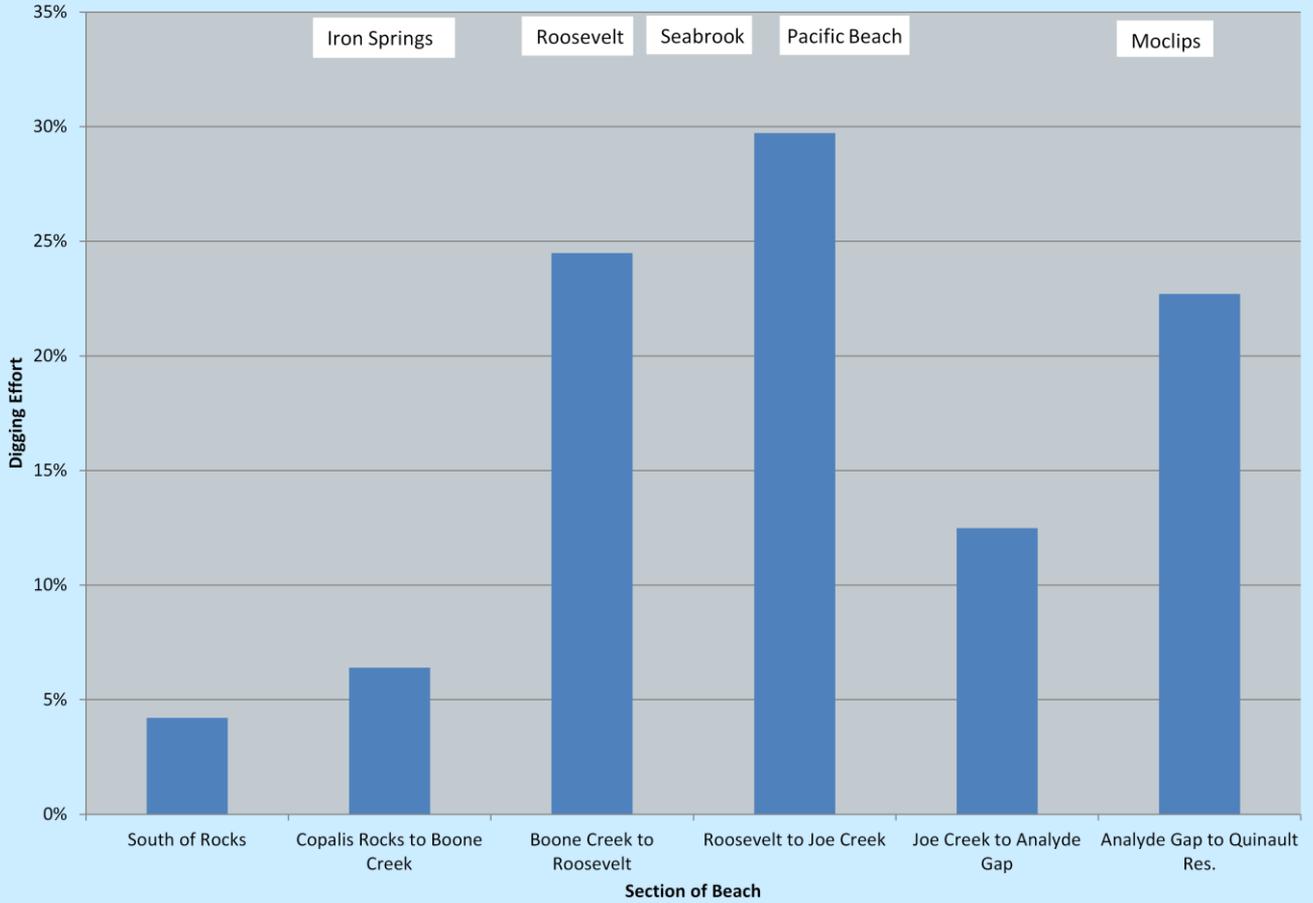
Month	Mocrocks	
October 2014	6 Days	Fri-Sun; Fri-Sun
November 2014	6 Days	Fri-Sun; Fri-Sun
December 2014	7 Days	Fri-Sun; Fri-Sun; Wed
January 2015	10 Days	Thu-Sun; Sat-Sun; Fri-Sat; Fri-Sat
February 2015	4 Days	Sun; Fri-Sun
March 2015	3 Days	Fri-Sun
April 2015	5 Days	Sat-Sun; Fri-Sun
May 2015	2 Days	Sat-Sun
Totals:		43 Days

As many are aware, the Mocrocks razor clam management beach is one of three beaches WDFW co-manages with tribal governments. The Quinault Indian Nation (QIN) has federally adjudicated fishing rights on this beach and we share the total allowable catch (TAC) 50/50 with the QIN. More details on state/tribal co-management of razor clams in Washington are found later in this presentation.

Late in the 2012-13 season while reviewing state harvest totals on Copalis and Mocrocks, a biometrician discovered an error in the calculations used by the state to estimate the daily recreational harvest. Biologists determined this error had gone undetected for a number of years and resulted in the reporting of harvest totals that in general underestimate the true total – on all beaches.

Since that time WDFW and QIN have come to an agreement on a five-year schedule WDFW will use to return to a portion of the clams that were inadvertently taken by the state fishery - in excess of the state's harvest share from Copalis and Mocrocks.

2015 Mocrecks Effort (Digger Trips) Distribution by Area



This graph presents the data we collect to make estimates of the total number of diggers during each low tide that is open. The data is presented as the portion of the total effort distributed across the full beach, over the entire season.

KALALOCH

Since the 2012-13 season, WDFW and Olympic National Park have jointly made a decision to forgo recreational harvest at Kalaloch. These closures have provided the population on this beach the best chance to recover from the decline it has experienced since 2009.

Since the 2012-13 season, WDFW and Olympic National Park have jointly made a decision to forgo recreational harvest at Kalaloch. These closures have provided the population on this beach the best chance to recover from the decline it has experienced since 2009.

The Quinault Indian Nation (QIN) and the Hoh Tribe both have federally adjudicated fishing rights on Kalaloch beach and we share the total allowable catch (TAC) 50/50 and these two tribes. More details on state/tribal co- management of razor clams in Washington are found later in this presentation. In addition, because Kalaloch falls within the boundaries of the Olympic National Park - WDFW works very closely with staff at Olympic National Park in the joint management of the Kalaloch razor clam recreational fishery.

MARINE TOXINS



Now, onto a topic that can really play havoc with shellfish harvesting – as experienced razor clammers know all too well.

Naturally occurring Harmful Algal Blooms (HAB) produce toxins that are ingested by razor clams and then concentrate in their meat tissue.

The razor clam fishery has been closed three times for a full season and many times for shorter periods, due to levels of two marine toxins in razor clam tissue that have exceeded state and federal action levels. Coast-wide since 1992, a total of 18% of all potential harvest days have been cancelled due to marine toxins produced by HAB events.

Domoic Acid

Amnesic Shellfish Poisoning (ASP)

- Produced by a diatom (*Pseudo-nitzschia sp.*)
- Domoic acid - neurotoxin
- Nausea, dizziness, memory loss
- Stroke-like symptoms that can lead to death
- No antidote
- Not destroyed by cooking/freezing
- Not easily detected

The marine toxin domoic acid has been the most prevalent toxin affecting razor clams harvest along the Washington coast. It is produced by a naturally occurring member of the marine plankton community – a diatom – named *Pseudo-nitzschia*. Recent research has led to better understanding of where these diatoms originate and what oceanographic and weather conditions must be present to allow them to move closer to shore and affect razor clam populations. Since 1992 when domoic acid was first found in razor clam meat tissue a total of 18% of planned razor clam digging opportunities have been lost due to high marine toxin levels, with the vast majority due to domoic acid.

This slide details the dangers domoic acid – in high levels – presents. More details can be found on the WDFW web site at :

http://wdfw.wa.gov/conservation/research/projects/algal_bloom/index.html

PSP Toxin

Paralytic Shellfish Poisoning (PSP)

- Produced by a dinoflagellate (*Alexandrium sp.*)
- Saxitoxin- neurotoxin
- Numbness, finger tingling/toes, lips
- Can paralyze the diaphragm and lead to death
- No antidote
- Not destroyed by cooking/freezing
- Not easily detected

The toxin that causes paralytic shellfish poisoning (PSP) is produced by another naturally occurring member of the marine plankton community. This species is the dinoflagellate named *Alexandrium*. PSP has historically been less of a problem for the razor clam fishery. However, in past seasons there have been razor clam closures due to PSP.

WDFW is required to collect samples per strict WDOH protocol:

To open or remain open, ALL samples must test below
The action level...

- Samples from 3 areas per beach.
- 12 adult clams per sample.
- 2 collections 7-10 days apart (often means digging on poorer tides).
- Last collection as close to opening as possible.
- In-season collections also 7-10 days apart.



As a result of concern for the health of the many people who enjoy razor clams, WDFW works closely with staff at the Washington Department of Health (WDOH) to collect and transport to the WDOH lab (north of Seattle in Shoreline) for processing. These clams are collected on a strict schedule that allows for the final sample to be collected as close to the day of each period razor clamming is open. This is the reason our openers are always announced as tentative, until final marine toxin results are available.”

Current Marine Toxin Levels

Since the increase in domoic acid levels on all beaches in late April and early May 2015, WDFW and our tribal co-managers have continued to collect razor clams for domoic acid testing by the Washington Department of Health. As of this time, levels remain above the 20 ppm action level. If the levels drop, the season will open as it normally does with the first good tides in October. If not, we will open when domoic acid levels drop to allow for safe consumption of razor clams.

The most recent levels can be found at:

http://wdfw.wa.gov/fishing/shellfish/razorclams/domoic_levels.html

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For more information, see:

<http://www.doh.wa.gov/CommunityandEnvironment/Shellfish.aspx>



Olympic Region Harmful Algal Blooms

ORHAB PARTNERSHIP

The ORHAB project is bringing knowledge to the local communities on the Olympic peninsula of the Washington State coast, empowering the tribes and state managers to make scientifically-based decisions about managing and mitigating harmful algal bloom (HAB) impacts on coastal fishery resources.

The ORHAB Partnership was formed in June 1999 by local residents and coastal communities' in response to seemingly random closures of the shellfisheries due to outbreaks of marine biotoxins (Paralytic Shellfish Poison, PSP) and demonic acid contamination of razor clams. It became clear that in order to manage these outbreaks there was a need to better understand underlying dynamics of these disruptive HAB events. These research efforts, made possible by federal funding from NOAA, have been underway since the summer of 2000.



For more information see : http://wdfw.wa.gov/conservation/research/projects/algae_bloom/index.html

The impacts of harmful algal blooms (HAB) on razor clam fisheries along the coast of Washington State was the impetus that brought together Seattle based NOAA HAB researchers, University of Washington oceanographers and marine algae experts, state and tribal fishery managers and human health experts to form a successful partnership - the **Olympic Region Harmful Algal Bloom (ORHAB)** project. Beginning in 2000 with five-years of funding from NOAA's Monitoring and Event Response for Harmful Algal Blooms ([MERHAB](#)) Program the ORHAB partnership provided for a host of activities that included the necessary scientific equipment and for the unique training of local technicians as HAB specialists. With the end of federal funding and primary reliance on state dollars generated by a surcharge on recreational shellfish licenses, the focus of the partnership is primarily on HAB event prediction and monitoring. These state funds provide for two HAB specialists, one working for WDFW and the other for the University of Washington. In addition, funding from the Quinault Indian Nation (QIN) provides a third HAB specialist who works for QIN. While employed by separate agencies these local experts work closely together to monitor for HAB events along the entire Washington coast. The ORHAB specialists regularly present and discuss their findings with staff biologists and public health experts from WDFW, QIN and the Washington Department of Health (WDOH). In addition, scientists from NOAA and the UW provide oversight and advice on a regular basis. Insight gained from the ORHAB partnership and the recently completed ECOHAB-PNW project has led to a better understanding of where HAB events originate and what environmental factors promote their growth. While much is yet to be learned, we can better manage our important shellfish fisheries because of these insights, good science, and hard work produced by well trained - and locally based - HAB specialists.

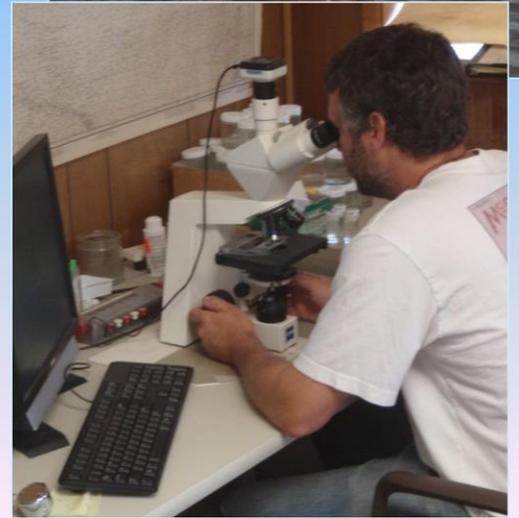
For more information see : http://wdfw.wa.gov/conservation/research/projects/algae_bloom/index.html

MERHAB : <http://www.cop.noaa.gov/stressors/extremeevents/hab/current/fact-merhab.aspx>

WDFW regularly monitors surf zone plankton, toxins, and water quality...



...to determine the environmental conditions associated with blooms of harmful species.



To conduct WDFW's work with monitoring for HABs a staff member has received training by University and federal experts. He makes regular collections of plankton samples from the surf zone and then analyzes them to determine the presence of toxic cells. The data received from this monitoring program can provide us advance notice of pending problems and give us time to adjust openers and give razor clammers a heads up of what may be coming.

For more information see:

http://wdfw.wa.gov/conservation/research/projects/algal_bloom/index.html



Transferring sample dilutions to a microplate



Adding domoic acid control to dilution series

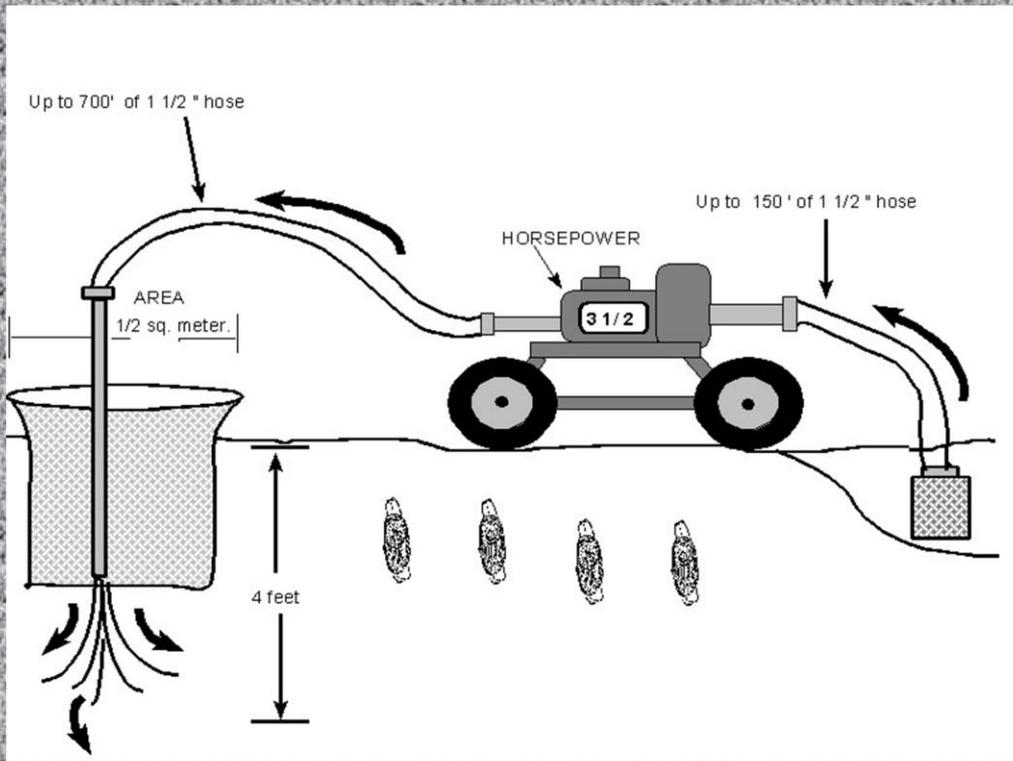


Loading microplate reader

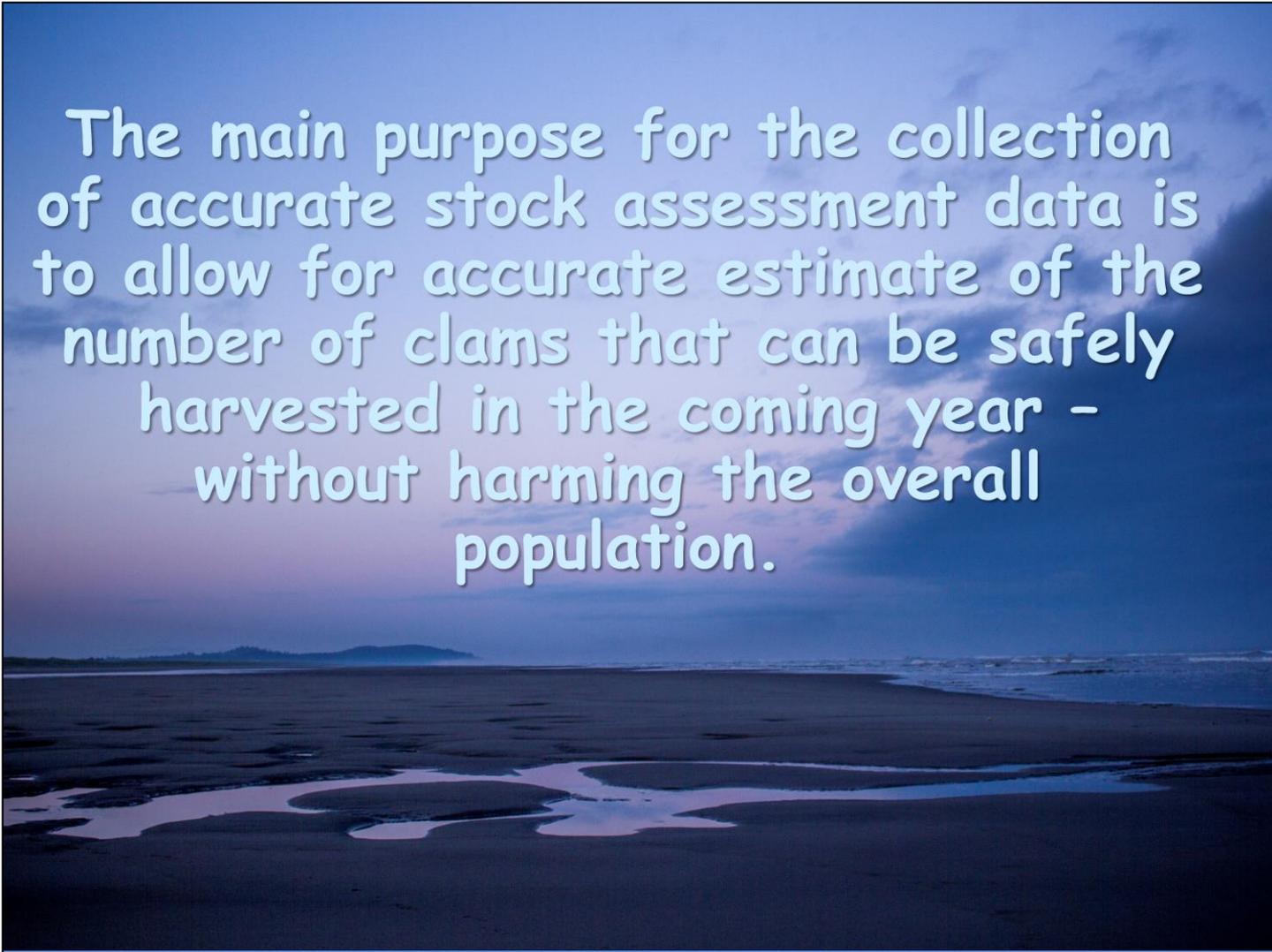
WDFW is now able to conduct a rapid field test using the ELISA method for the presence of domoic acid in shellfish and seawater

One major goal of the ORHAB project has been to develop and implement rapid detection technologies. This technology offers the promise of allowing field staff to determine the presence of toxins in seawater samples shellfish tissue without having to wait for the current time-consuming transport of samples to a distant laboratory. This process does not replace the regulatory testing conducted by the Washington Department of Health, but it does provide managers with an early warning of potential pending HAB issues.

Status of the Razor Clam Stocks



We now turn our attention to the work WDFW does to annually determine the number of razor clams available on each beach.



The main purpose for the collection of accurate stock assessment data is to allow for accurate estimate of the number of clams that can be safely harvested in the coming year - without harming the overall population.

The main purpose for the collection of accurate stock assessment data is to allow for an accurate estimate of the number of clams that can be safely harvested in the coming year – without harming the overall population.

The stock assessment data provides us with estimates of the total number of clams and their average size. We are then able to determine the total number of clams that are at or over 3 inches (this size at which razor clams generally begin to make a clear “show” and are harvestable. The total allowable catch (TAC) for each beach is then calculated using a fixed harvest rate of 30% of the total number of clams at or over 3 inches.

Know that razor clams that are 3 inches during our summer stock assessment will quickly grow and become a more suitable size as the season progresses.

Starting in May and ending in September
WDFW and tribal co-managers survey a total



...total of 58 miles of
Razor Clam habitat...
from the sound end of the
Long Beach Peninsula (Beard's Hollow) to
the north end of Kalaloch.

This year's work started on May 16th and was completed on August 29.

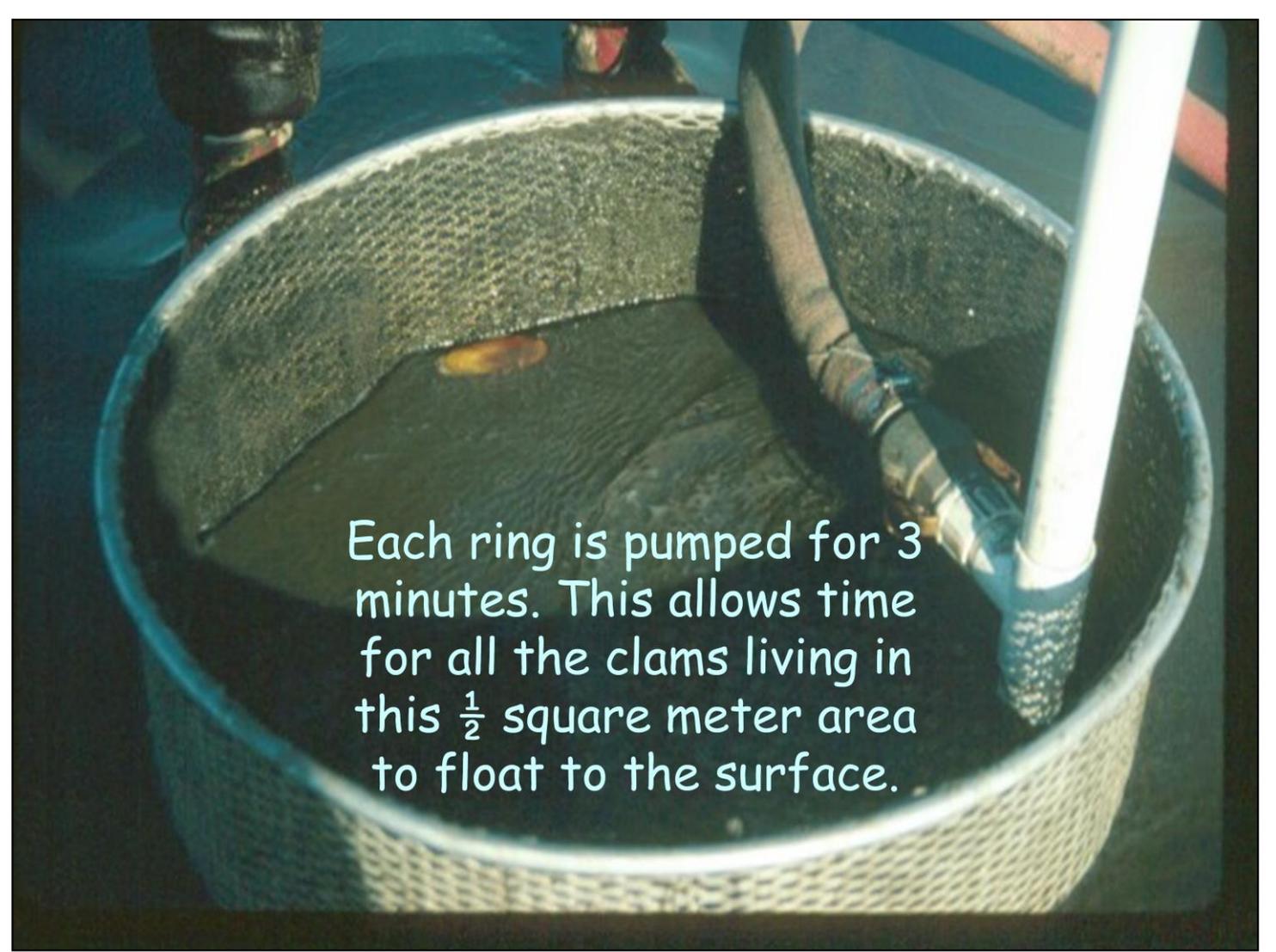
The survey method WDFW has been using since 1997 is the Pumped Area Method.

Surveying razor clams is not as easy as just digging all the clams in a known area. Razor clam digging requires the clam to "show" and not all clams "show" at the same time. As a result, it is not possible to dig every clam in a known area. The sampling method we use takes this into account and removes all the clams from a known area.



Water is pumped up
the beach
and used to liquefy the
sand
within a $\frac{1}{2}$ square meter
aluminum ring.

The Pumped Area Method uses water (pumped from the surf or a nearby lagoon) to liquefy the sand within an aluminum ring that is exactly $\frac{1}{2}$ square meter in area. Every clam that is within the area of the ring will float to the surface and can be counted and measured as part of the random sample. The clams sample range in size from full grown adults (152 mm or 6 inches plus) down to very small newly “set” juvenile clams that are as small as 5 mm or $\frac{1}{4}$ inch and have only recently settled into the sand from the larval stage. This provides us a way to make estimates for both the recruit sized clams ($>$ or $=$ 76 mm or 3 inches) and the pre-recruits clams ($<$ 76 mm or 3 inches). Previously used stock assessment methods did not provide a good bases for estimating pre-recruits.



Each ring is pumped for 3 minutes. This allows time for all the clams living in this $\frac{1}{2}$ square meter area to float to the surface.

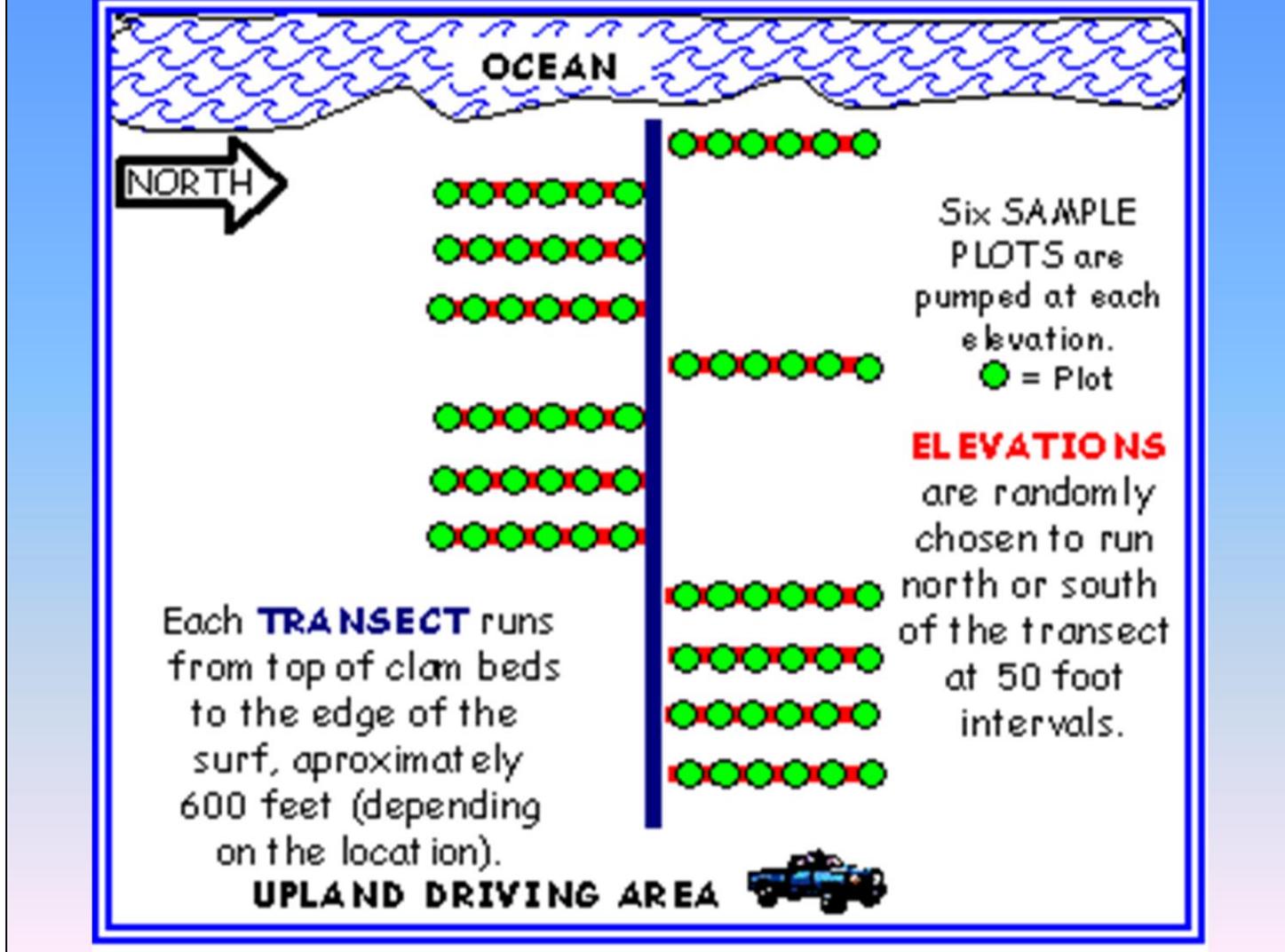
Each ring is pumped for 3 minutes allowing time for all the clams in the area of the ring to float to the surface and be counted.



Each clam is recorded, measured and returned to the beach.

Each clam is measured and recorded and returned to the beach.

The Pumped Area Method allows biologists to obtain the full data set needed to estimate both recruit clams and pre-recruit clams. This is in contrast with previous razor clam population sampling methods that were unable to estimate pre-recruits.



Each of the five management beaches is sampled with randomly selected transects chosen approximately one-mile apart. The sampling occurs during a good low tide, and begins at the top of the razor clam beds and moves out to the edge of the surf. Six plots (sample rings) are pumped at each 50 foot interval.

WDFW has produced a new video that discusses our razor clam stock assessment methods. Check it out at: http://youtu.be/aC4fu6_8G8I



A recently produced video that demonstrates the WDFW stock assessment methods is now available on line. This will give you a better picture of the work we do each summer all along the Washington coast to make the best possible razor clam population estimates to be used in the management of the fishery. The video can be found at; http://youtu.be/aC4fu6_8G8I

Or go to <https://Youtube.com> and search for “Razor clams in Washington Stock Assessment”

How many days can we dig?

Stock assessment data :

1. Estimate of the number clams
2. Estimate of the average size

TAC (total allowable catch) =
Total clams 3 inches or greater x
variable harvest rate.

During the 2011-12 season, WDFW began using a new “variable” harvest rate on two beaches (rather than using a fixed harvest rate of 30%.)

On these beaches we determine the harvest rate based on the ratio of the **current population** of razor clams (as measured by our most recent stock assessment on each beach) and the **highest population** level measured (again on each beach). The maximum harvest rate possible (using the variable harvest rate method) is 40%.

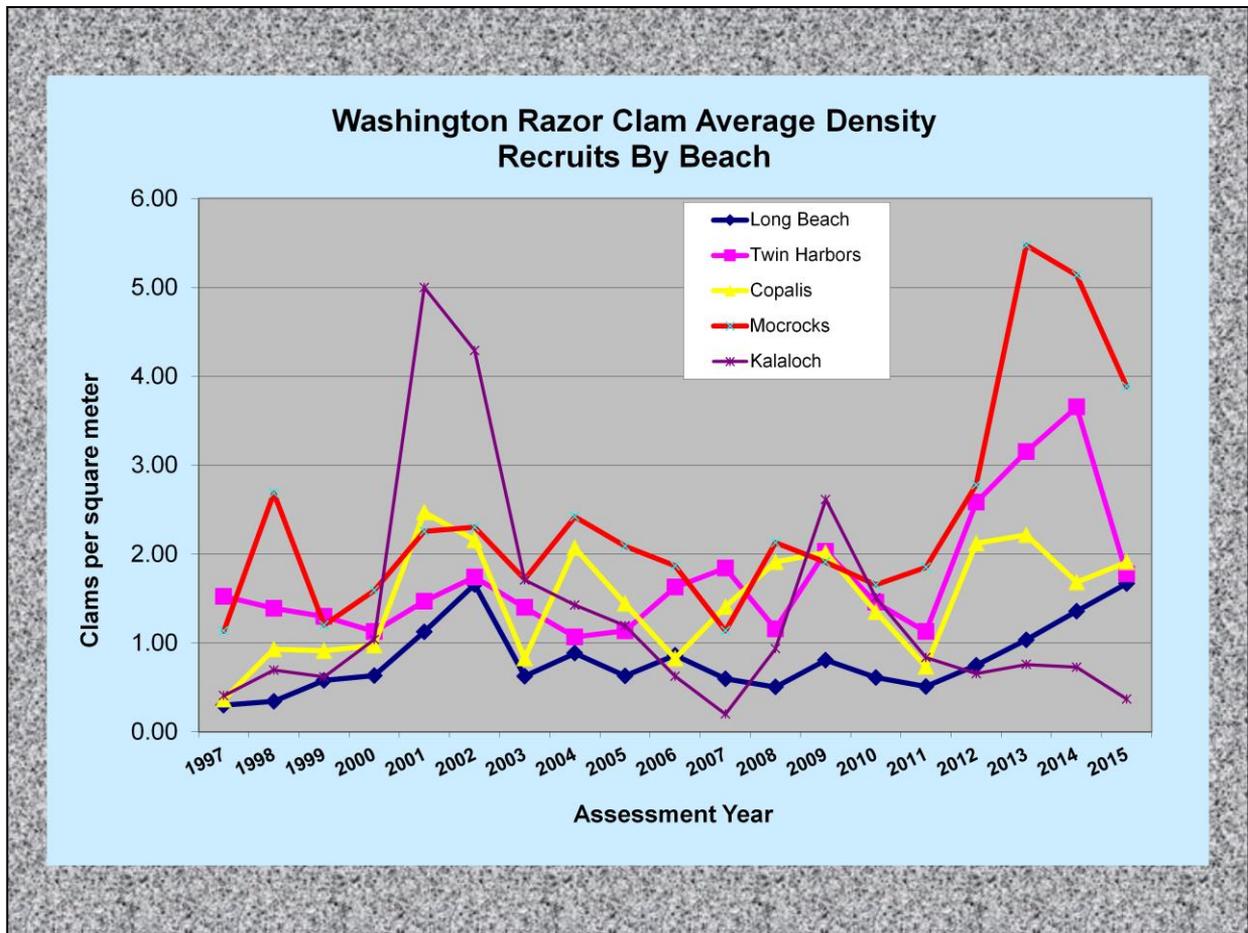
This methods allows for more harvest during times of abundant populations while still preserving the spawning capacity of the population. It also includes an automatic rebuilding strategy (with a reduced harvest rate) during times when stocks are weak.

Is being used to determine the TAC (total allowable catch) for Long Beach, Twin Harbors, Copalis and Mocrocks.

2015 Stock Assessment - Results



Many of you will recall that in 2014 we reported strong razor clam populations on all beaches, except for Kalaloch. The 2015 assessment of razor clam populations showed some changes. However, overall the number of clams remains strong. Read on for the details.



The best way to compare razor clam populations between beaches is to look at the average density (on the razor clam beds over the entire length of each beach) as measured in our annual stock assessment work. This graph displays average density on each beach back to 1997. (Because of the change in the way razor clam populations are assessed, it is difficult to compare populations earlier than 1997.) It is clear from this data that razor clam populations naturally change in abundance a fair amount. This is not an unexpected pattern in a shellfish population that is so heavily dependent on favorable oceanographic and weather conditions to allow for successful spawning and setting. As with any natural population, there are also disease processes that contribute to the variability in population levels. It is also easy to see that during this 18 year period, Mocrocks has the most dense populations, though there has been a some decline over the strong 2013 population here. Long Beach has had continued steady improvement in overall densities. Twin Harbors has shown a significant drop from the record high 2014 high density, however, the 2015 density is still above the long term average. The yellow Copalis line is showing an increase in adult populations over the 2014 assessment. Adult populations at Kalaloch continue to decline, however there is a very strong recruitment of small clams that could lead to a significant increase in adult populations in the months ahead (see slides 49-52 for more details). The next several slides will show the specific data from each beach as measured in total number of clams. However, keep this chart comparing average density over all beaches in mind as you review the beach specific data.

The 2015 the average density (clams per square meter) by beach was : Long Beach = 1.67; Twin Harbors = 1.78; Copalis = 1.91; Mocrocks = 3.89; Kalaloch = 0.37.

For comparison:

The 2014 the average density (clams per square meter) by beach was : Long Beach = 1.36; Twin Harbors = 3.65; Copalis = 1.68; Mocrocks = 5.14; Kalaloch = 0.73.

The 2013 the average density (clams per square meter) by beach was : Long Beach = 1.03; Twin Harbors = 3.15; Copalis = 2.22; Mocrocks = 5.47; Kalaloch = 0.76.

LONG BEACH RAZOR CLAM POPULATION, TOTAL ALLOWABLE CATCH (TAC) AND HARVEST DATA

YEAR	POPULATION (clams)		TAC (clams)	HARVEST	% of TAC
	RECRUITS	PRE-RECRUITS	of recruits	TOTAL (clams)	harvested
2011-12	3,648,805	2,781,402	1,094,642	1,425,685	130.2%
2012-13	5,356,383	14,450,287	1,606,915	2,382,398	128.9%
2013-14	7,387,752	814,599	2,881,223	2,423,612	84.1%
2014-15	9,694,093	25,633,364	3,885,492	2,421,393	62.3%
2015-16	11,924,512	22,329,350	4,768,605		
AVERAGE	7,602,309	13,201,800		1,726,308	

For the third year in a row there has been a significant increase in the abundance of recruit sized razor clams at Long Beach. This is the largest population of razor clams we've recorded at Long Beach since beginning annual stock assessments using the pumped area method in 1997. As a result, we have used a variable harvest rate (discussed in slide #34) of 40% at Long Beach to determine the TAC for the 2014-15 season.

The number of pre-recruit clams remains strong and almost double the short-term average and the third highest on record. This is a very good sign for strong adult populations in future seasons.

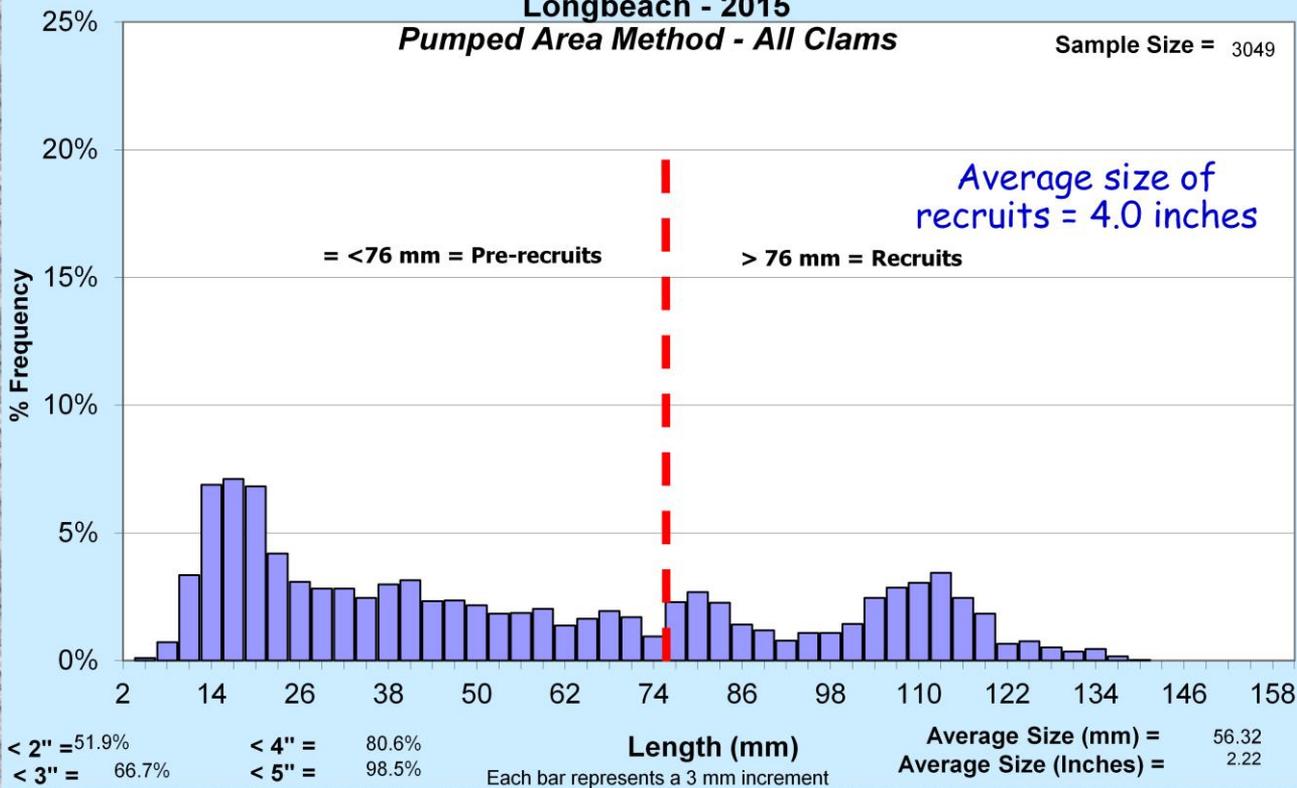
Recall; recruits are defined as clams => 76 mm (3 inches); pre-recruits are < 76 mm (3 inches).

Washington Razor Clam

Size Frequency Distribution Longbeach - 2015

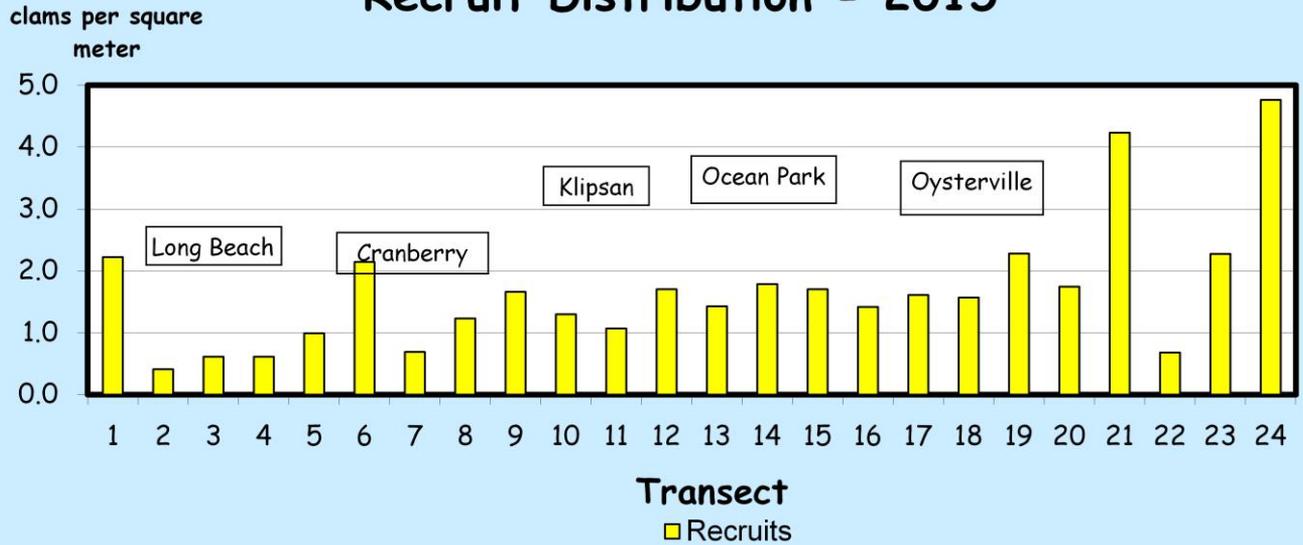
Pumped Area Method - All Clams

Sample Size = 3049



The average size of the Long Beach recruit clams found in our summer surveys was 3.8 inches which is less than the 2013 average of 4.4 inches and the 2012 average of 3.9 inches. This is a result of the heavy recruitment of young clams into the fishery. These clams will grow quickly, but we want to remind you that as the fall season begins you are required to keep the first 15 clams, regardless of size or condition.

Long Beach Razor Clam Population Recruit Distribution - 2015



Generally at Long Beach the better digging is on the north end of the beach. However, the distribution of clams along the beach found in our 2015 assessment shows good populations exist in many places all along the beach.

**TWIN HARBORS RAZOR CLAM POPULATION, TOTAL ALLOWABLE CATCH (TAC)
AND HARVEST DATA**

YEAR	POPULATION (clams)		TAC (clams) of recruits	HARVEST (clams) TOTAL	% of TAC harvested
	RECRUITS	PRE- RECRUITS			
2011-12	2,054,381	5,571,684	616,314	753,793	122.3%
2012-13	4,704,458	8,757,897	1,411,337	1,537,299	81.7%
2013-14	5,744,411	1,398,700	2,297,764	1,714,479	78.9%
2014-15	6,657,152	3,113,981	2,662,861	1,701,101	63.9%
2015-16	3,239,459	2,831,118	1,295,784		
AVERAGE	4,479,972	4,334,676		1,136,138	

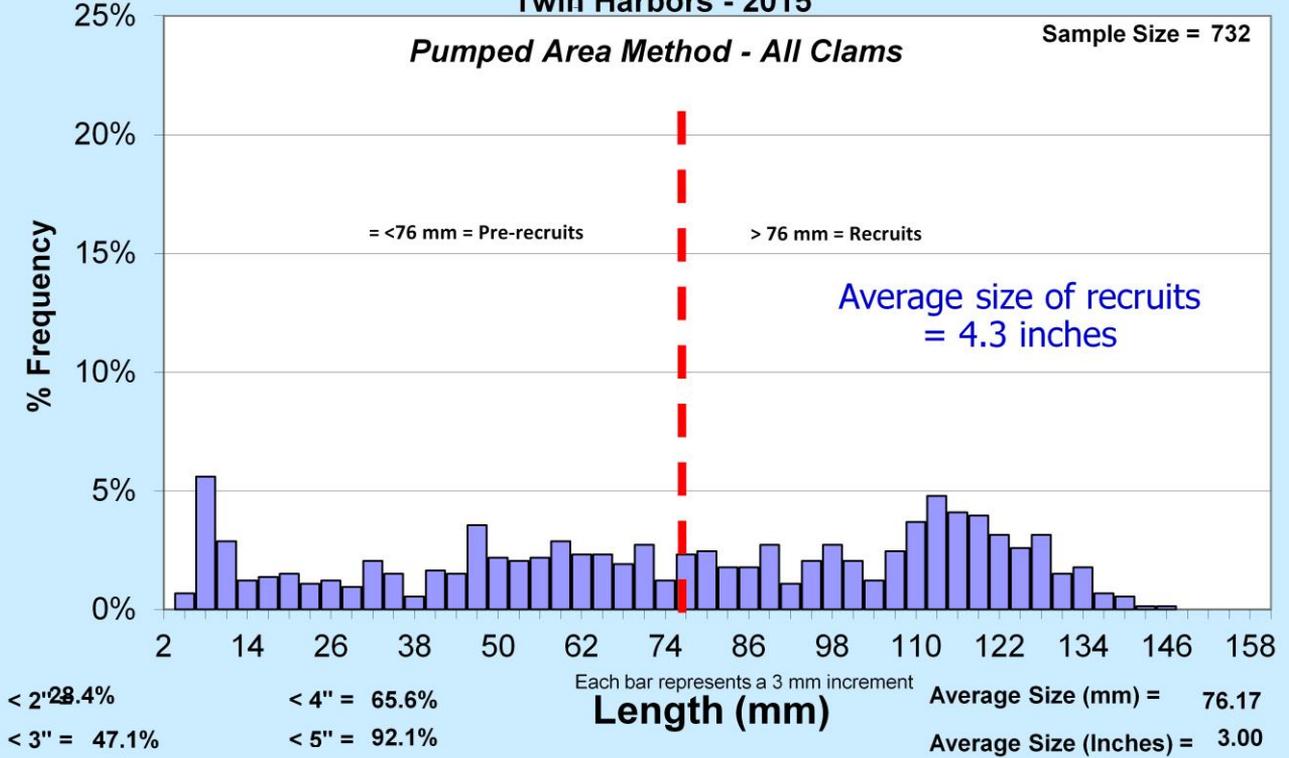
After three years of very strong populations on this beach, the 2015 assessment shows a decrease in the number of recruit sized clams. However, as a result we are using a lower variable harvest rate (discussed in slide #34) of 37% at Twin Harbors to determine the TAC for the 2015-16 season and there will be fewer digging days during the 2015-16 season.

Recall; recruits are defined as clams => 76 mm (3 inches); pre-recruits are < 76 mm (3 inches).

Washington Razor Clam

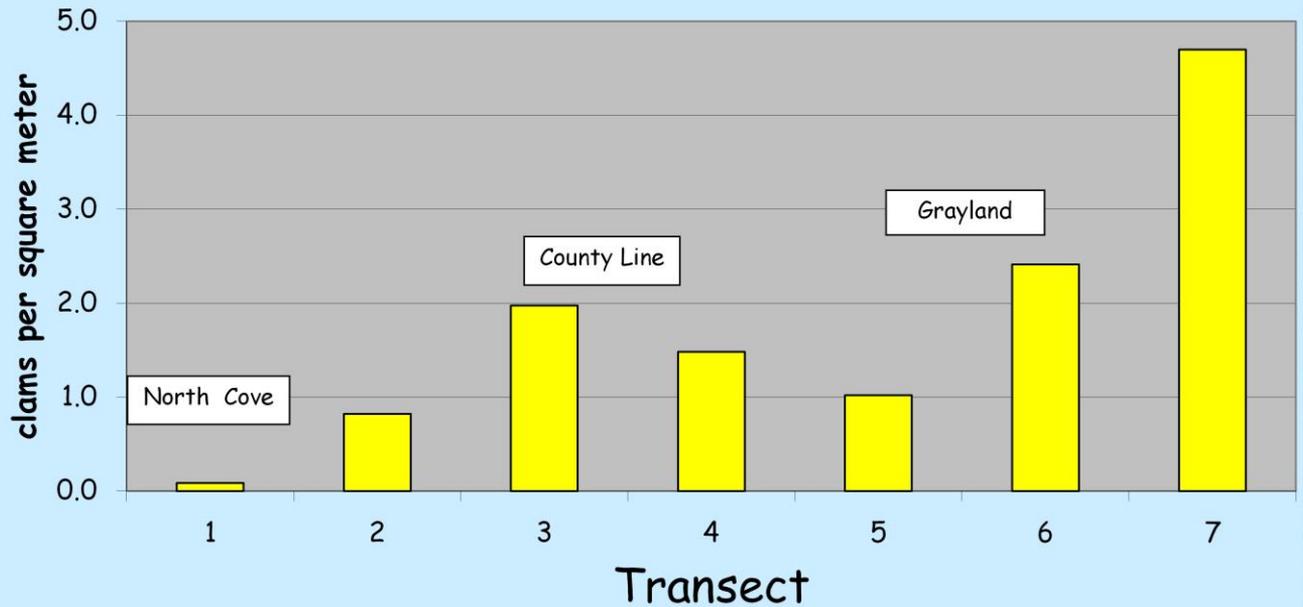
Size Frequency Distribution

Twin Harbors - 2015



The average size of the Twin Harbors recruit clams found in our summer 2015 surveys was 4.3 inches. This compares to the 2014 average of 4.3 inches which is larger than the 2013 average of 4.4 inches.

Twin Harbors Razor Clam Population Recruit Distribution 2015



Except for the very southern end of the Twin Harbors beach, the 2015 assessment good densities of clams at most locations along the Twin Harbors beach. The northern end of the beach is especially strong with close to 5 clams per square meter.

COPALIS RAZOR CLAM POPULATION, TOTAL ALLOWABLE CATCH (TAC) AND HARVEST DATA

YEAR	POPULATION (clams)		Total TAC (clams) of recruits	State's Share (50% w/ <i>adjustments</i>)	State's HARVEST (clams) TOTAL	% of share harvested
	RECRUITS	PRE- RECRUITS				
2011-12	2,475,820	7,344,699	742,746	371,373	466,196	125.5%
2012-13	7,151,264	9,898,813	2,145,379	1,072,690	1,393,980	130.0%
2013-14	7,472,919	1,394,801	2,241,876	1,396,608	1,102,421	78.9%
2014-15	5,680,975	6,848,607	2,101,961	889,827	802,720	90.2%
2015-16	6,440,889	7,077,889	2,511,869	1,094,781		
AVERAGE	5,844,373	6,512,962			946,116	

Our assessment work shows the 2015 Razor clam populations at Copalis shows a nice increase in recruit sized razor clams. In addition, the healthy numbers of pre-recruits present at Copalis during the 2014 and 2015 assessments will likely translate to more recruits in the coming seasons. As a result, we are using a higher variable harvest rate (discussed in slide #34) of 39% at Copalis to determine the TAC for the 2015-16 season – which will likely lead to additional harvest opportunities.

Recall; recruits are defined as clams => 76 mm (3 inches); pre-recruits are < 76 mm (3 inches).

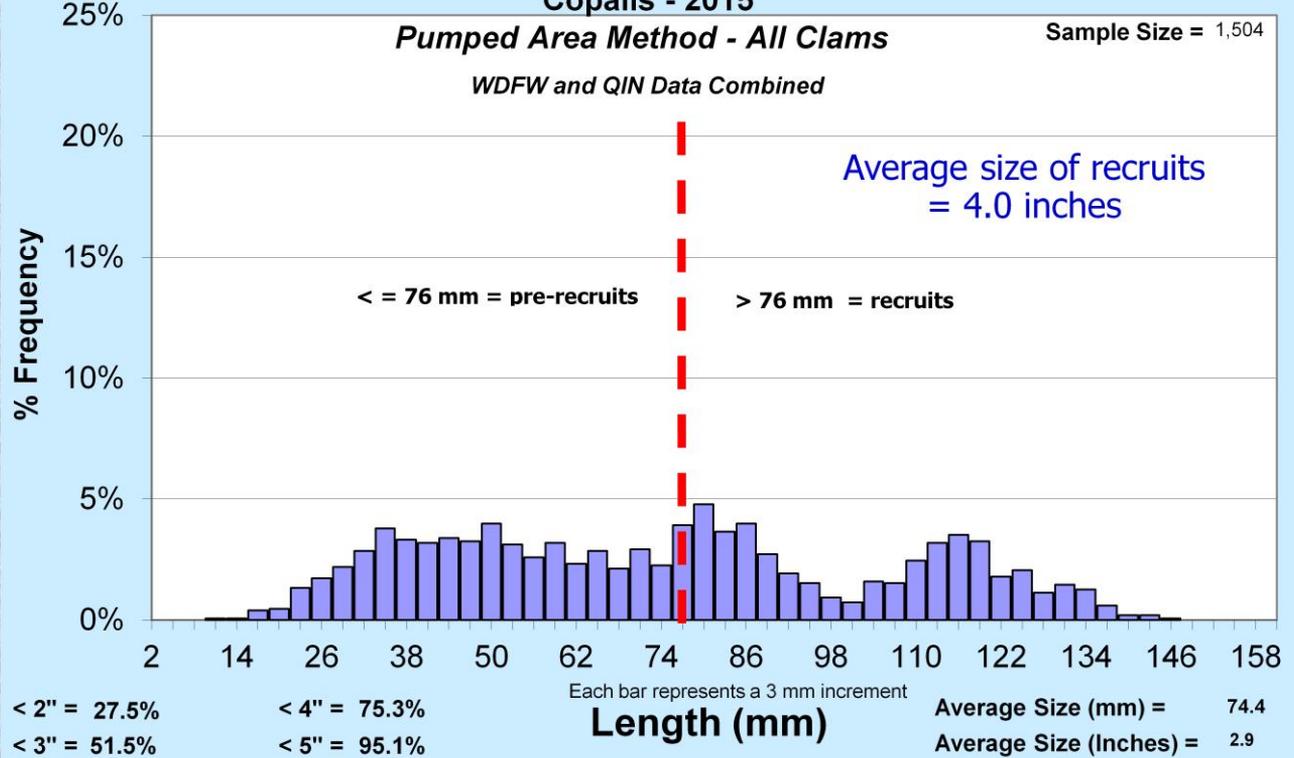
Late in the 2012-13 season while reviewing state harvest totals on Copalis and Mocrocks, a biometrician discovered an error in the calculations used by the state to estimate the daily recreational harvest. Biologists determined this error had gone undetected for a number of years and resulted in the reporting of harvest totals that in general underestimate the true total – on all beaches.

Since that time WDFW and the Quinault Indian Nation (QIN) have come to an agreement on a five-year schedule WDFW will use to return to a portion of the clams that were inadvertently dug in excess of the state's harvest share from Copalis and Mocrocks.

Washington Razor Clam

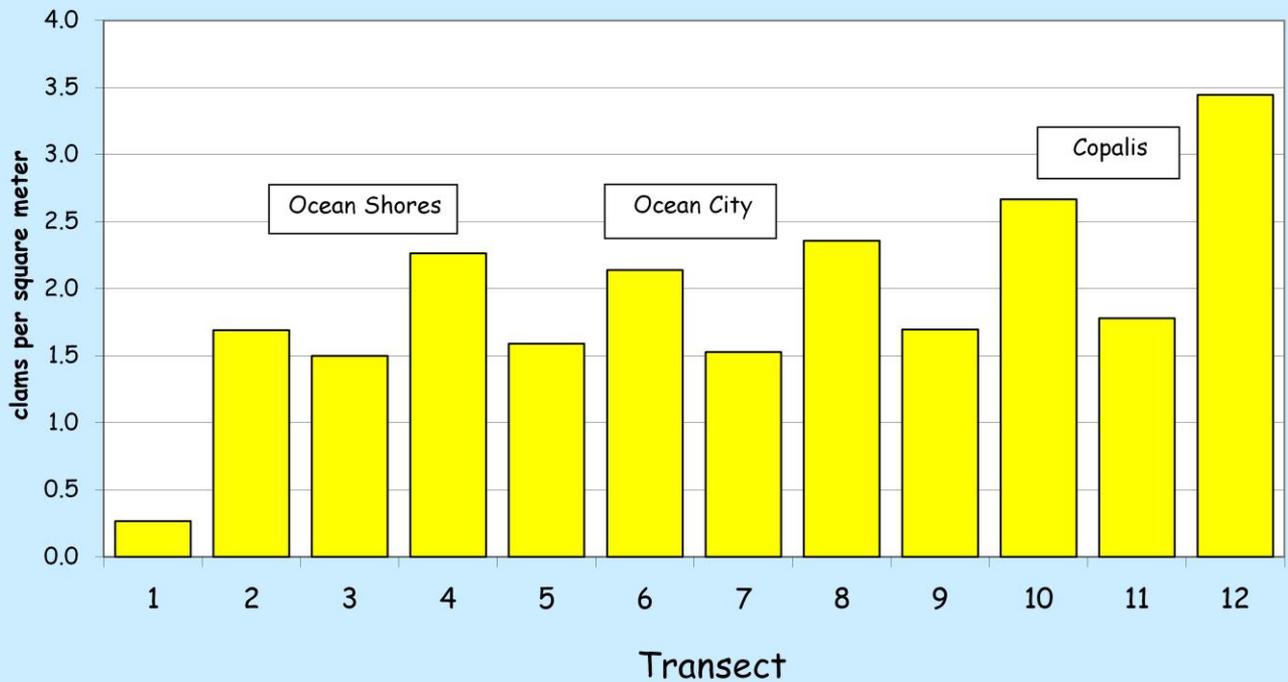
Size Frequency Distribution

Copalis - 2015



The average size of the Copalis recruit clams found in our 2015 summer surveys was 4.0 inches which is comparable to the 2014 average of 4.3 inches.

Copalis Razor Clam Recruit Population Distribution 2015



A nice increase in densities on the Copalis beach across most all areas will allow for some excellent digging opportunities.

MOCROCKS RAZOR CLAM POPULATION, TOTAL ALLOWABLE CATCH (TAC) AND HARVEST DATA

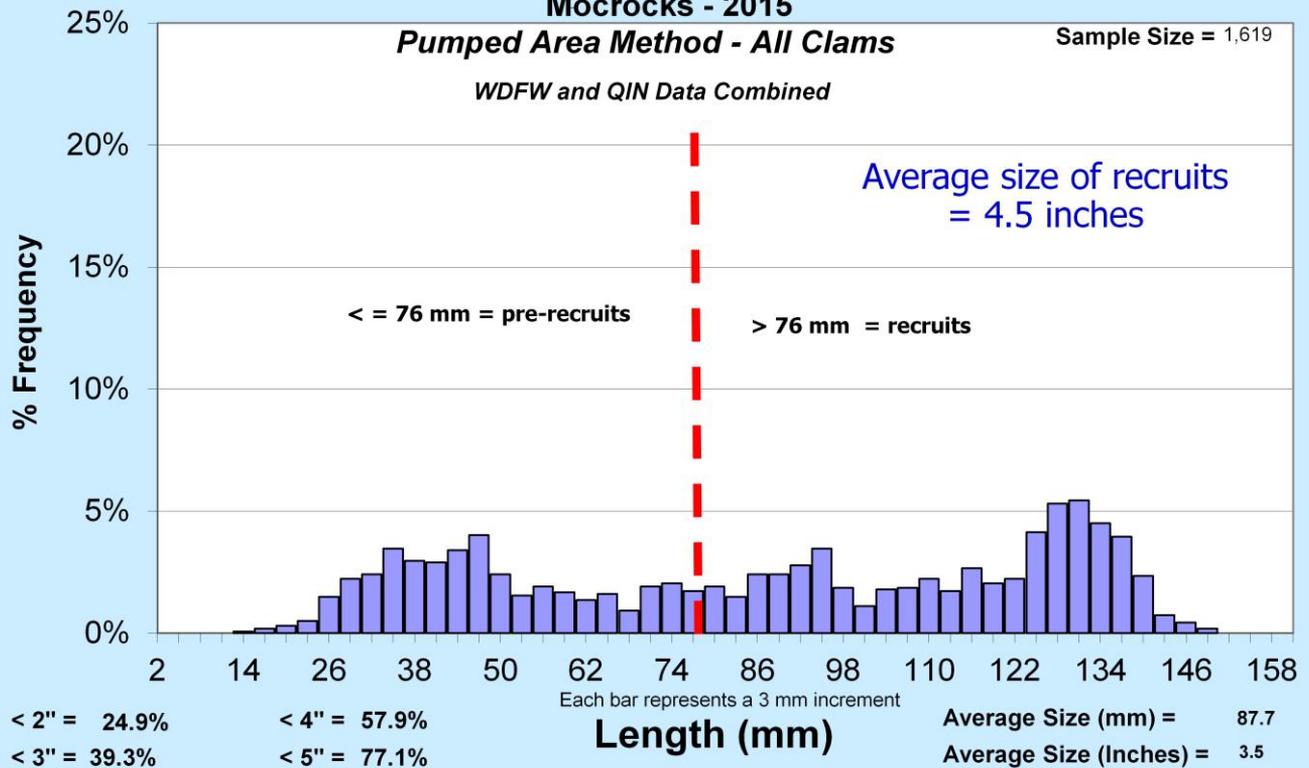
YEAR	POPULATION (clams)		Total	State's Share	State's	% of share
	RECRUITS	PRE-RECRUITS	TAC (clams of recruits)	(50% w/ adjustments)	HARVEST (clams) TOTAL	
2011-12	4,038,871	8,211,211	1,211,661	605,831	758,431	125.2%
2012-13	6,064,416	10,276,881	1,819,335	909,667	765,637	84.2%
2013-14	11,935,249	6,663,172	3,580,575	1,790,287	1,102,421	78.9%
2014-15	11,201,544	12,981,705	4,480,617	2,240,309	831,281	37.1%
2015-16	8,475,370	5,475,844	3,390,148	1,695,074		
AVERAGE	8,343,097	8,721,763			816,565	

In 2013 we reported that Mocrocks population was the strongest in the last 17 years. (Because of the change in the way razor clam populations are assessed, it is difficult to compare populations earlier than 1997.) As in 2014, the 2015 assessment has decreased some, but still represents a very healthy population. Recall; recruits are defined as clams => 76 mm (3 inches); pre-recruits are < 76 mm (3 inches). We expect there may be periods during the coming season when Mocrocks is open when other beaches are not. It will be important for diggers to know which beach they are planning to harvest on and to pay attention to signs posted on beach approaches that would indicate a specific beach is closed to harvest.

Recall that late in the 2012-13 season while reviewing state harvest totals on Copalis and Mocrocks, a biometrician discovered an error in the calculations used by the state to estimate the daily recreational harvest. Biologists determined this error had gone undetected for a number of years and resulted in the reporting of harvest totals that in general underestimate the true total – on all beaches. Since that time WDFW and the Quinault Indian Nation (QIN) have come to an agreement on a five-year schedule WDFW will use to return to a portion of the clams that were inadvertently dug in excess of the state’s harvest share from Copalis and Mocrocks.

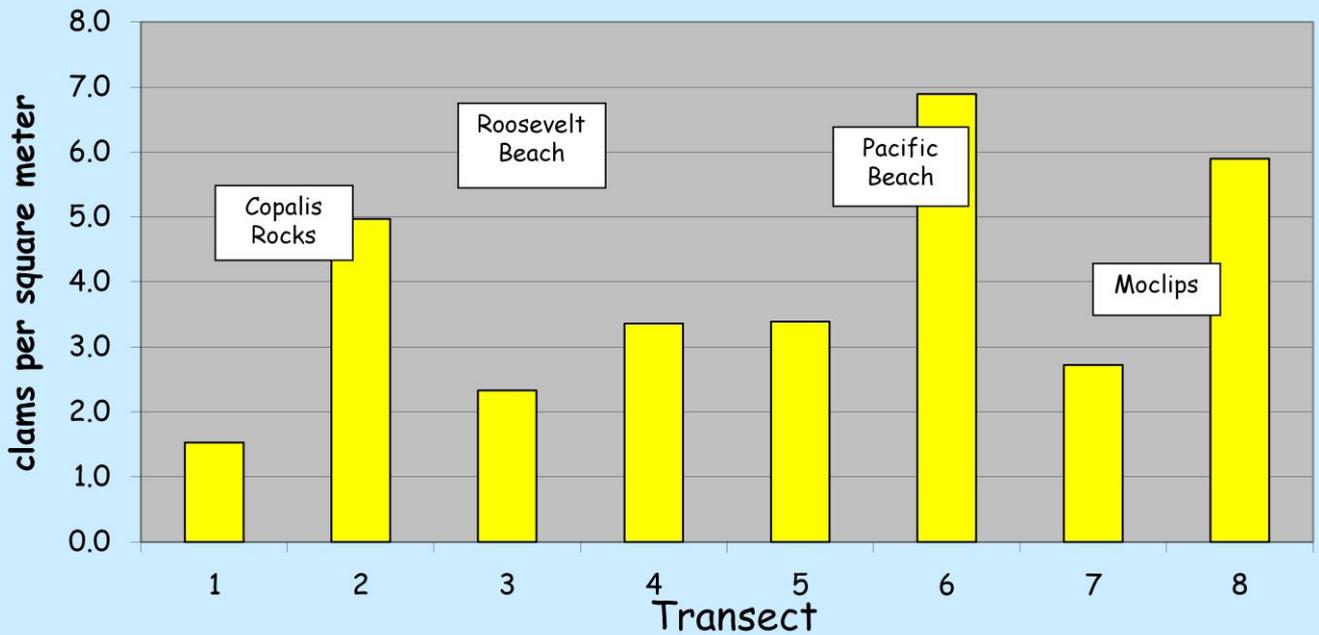
Washington Razor Clam

Size Frequency Distribution Mocrocks - 2015



The average size of the Mocrocks recruit clams found in our 2015 summer surveys was 4.5 inches which is similar to the 2014 average of 4.6 inches. Diggers will find a mix of both larger and smaller clams on this beach. We want to remind everyone that they are required to keep the first 15 clams regardless of size or condition.

Mocrocks Razor Clam Population- 2015 Recruit Distribution



Razor clam densities this year (2015) at Mocrocks are strong in most all of the areas sampled. Digging should be especially good in the Pacific Beach and Moclips areas. Note that the y-axis for this Mocrocks graph is expanded over that used on the other beaches to capture the exceptionally strong densities of clams on this beach.

KALALOCH RAZOR CLAM POPULATION, TOTAL ALLOWABLE CATCH (TAC) AND HARVEST DATA

YEAR	POPULATION (clams)		TAC (clams) harvest rate 25.4%	50%	State's HARVEST (clams)
	RECRUITS	PRE-RECRUITS	of recruits	SHARES	TOTAL
2011-12	1,138,272		289,121	144,561	2,952
2012-13	894,041	903,369	227,086	113,543	0
2013-14	1,033,286	536,262	262,455	131,227	0
2014-15	990,040	549,684	251,470	125,735	0
2015-16	501,890	89,708,93	127,480	63,740	
AVERAGE	911,506	18,804,022	231,522	113,850	

The number of recruit sized razor clams at Kalaloch in 2015 was lower than during the 2014 assessment and represents an all time low. However, the big news is the unprecedented very large abundance of pre-recruit clams present on the northern half of the Kalaloch beach. More details in the following slides. Recall; recruits are defined as clams => 76 mm (3 inches); pre-recruits are < 76 mm (3 inches).

Recall that the Olympic National Park works closely with WDFW staff in the management of the recreational fishery on the Kalaloch beach. WDFW takes the lead in the population assessment work. ONP has the lead in harvest monitoring and enforcing the recreational fishery. Both groups work together to set specific dates when harvest will occur on this beach.



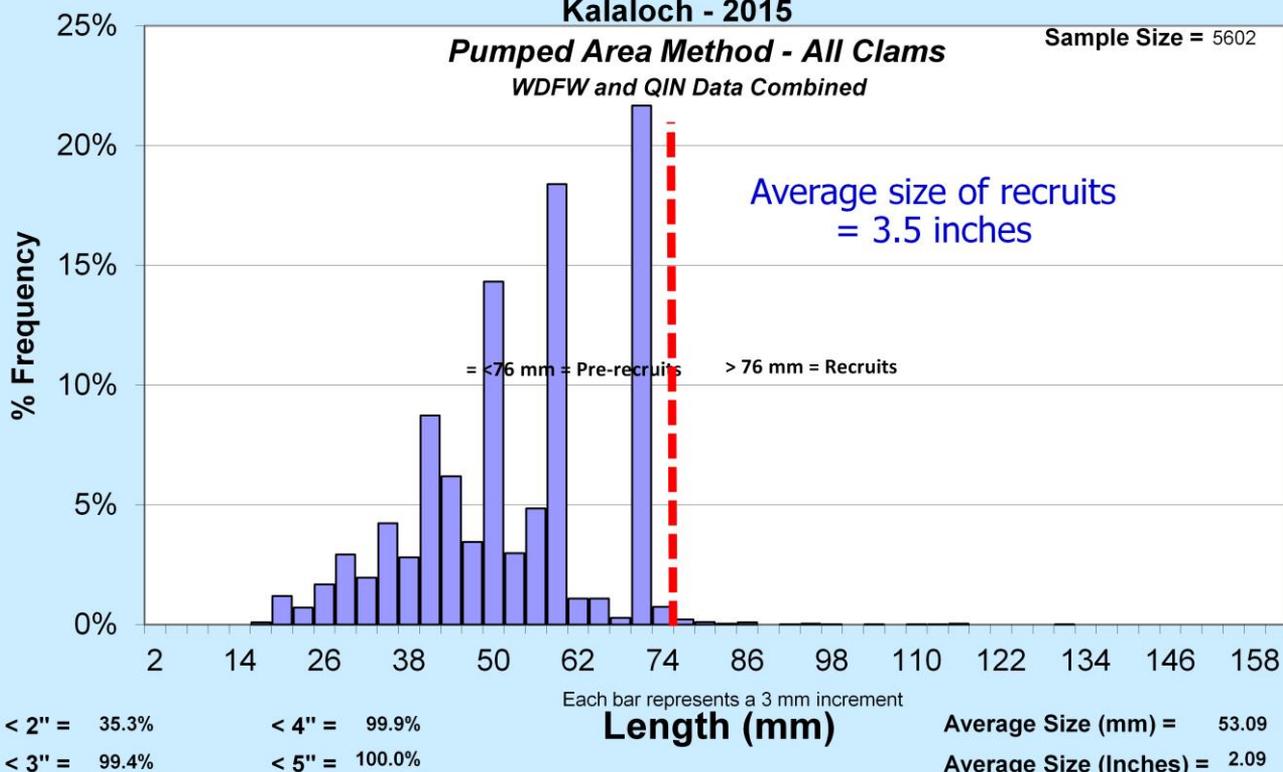
During the 2015 stock assessment at Kalaloch, biologists from WDFW, The Quinault and Hoh Tribes and Olympic National Park found very few harvestable sized clams, but we did document a record density of small 2 inch clams. Typically, in the $\frac{1}{2}$ square meter area of our sample ring (see slides 30 to 33 for more details) it would be exceptional to find 5 to 6 clams. During the 2015 assessment on the northern half of the Kalaloch beach we documented as many as 230 of these small clams in each $\frac{1}{2}$ square meter sample. Never before, on any beach, has such a dense population of razor clams been documented. We expect there could be a high level of mortality because of the sheer numbers of these clams and the available food sources. We plan to continue to monitor this population in the weeks ahead.

Washington Razor Clam

Size Frequency Distribution Kalaloch - 2015

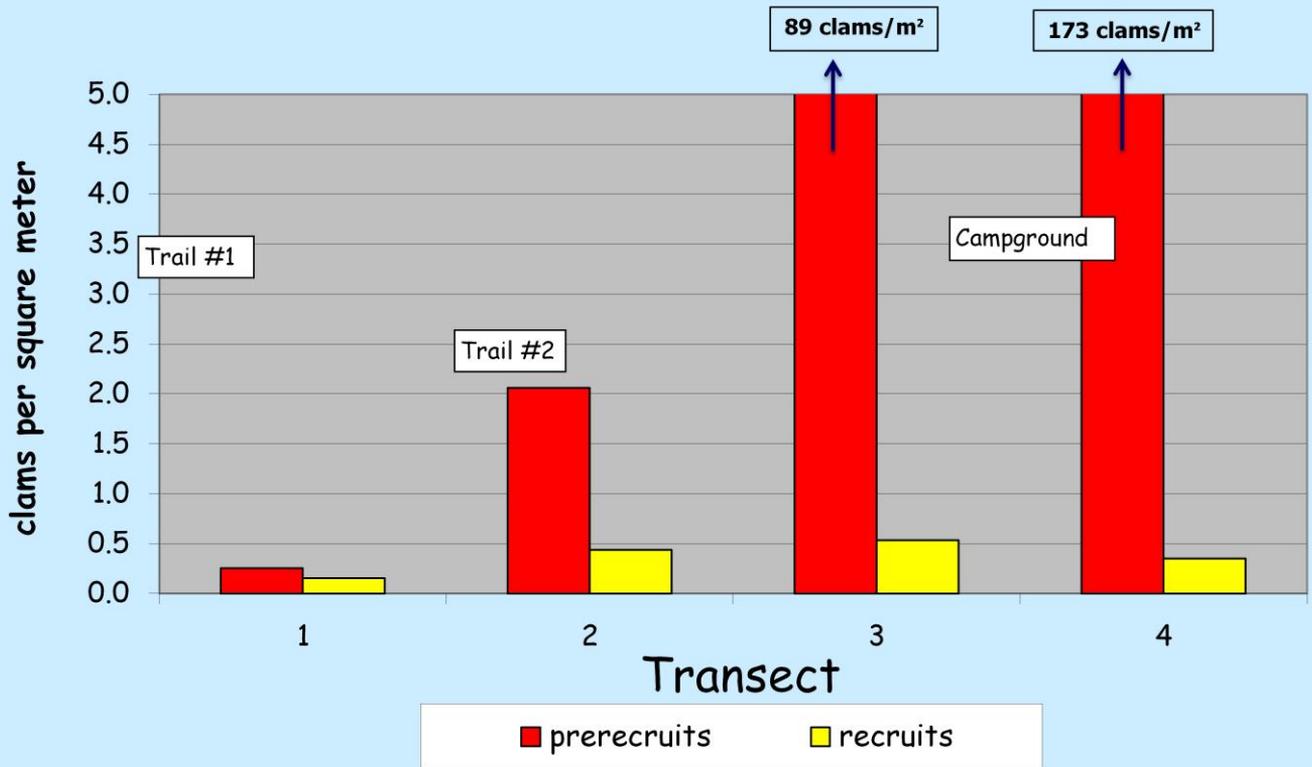
Pumped Area Method - All Clams
WDFW and QIN Data Combined

Sample Size = 5602



The few recruit clams we found at Kalaloch have an average size of just 3.5 inches. However, if even a relatively small portion of the large group of pre-recruit clams we found survive and grow to recruit size, there could be some excellent harvest opportunities in the future. It is not clear how long it will take for these clams to grow to a harvestable size but managers will continue to follow this unusual situation closely.

Kalaloch Clam Population Distribution - 2015



Play close attention that the y-axis (left hand side) of this graph has a maximum of 5.0 clams/m² (clams per square meter). The number of pre-recruits (red bars) in transects three and four have peaks at 89 clams/m² and 173 clams/m² respectively. To witness this level of recruitment, especially since these clams have already survived for several months to reach 40 to 60 mm (around 2 inches), is a once in a career experience for any shellfish biologist to experience...

Co-Management With Coastal Tribes

- Share the resource and share the work
 - ...complete joint stock assessments
 - ...determine TACs jointly
- Sign Fishery Management Plans annually
- Different seasons for different reasons
 - ...tribal C&S and or commercial seasons
 - ...State recreational seasons
- Each group monitors their own fishery
 - ...make individual harvest estimates / share data
 - ...provide enforcement

As was mentioned earlier, WDFW works closely with two coastal tribes in the management razor clam populations.

Quinault Tribal staff working on Kalaloch Beach in July 2011



The Quinault Indian Nation (QIN) shares the labor of the stock assessment work - with their own crews of biologists and technicians who also use the Pumped Area Method. Working side by side QIN and WDFW staff assess razor clam populations at Copalis, Mocrocks and Kalaloch. On each of these beaches half of the sample transects are completed by QIN staff and half by WDFW staff. The data is pooled and a joint population estimate is made.

At Kalaloch, the Hoh Tribe provides additional staff to assist in the assessment on that beach. Because there is no vehicle access on the Kalaloch beach – having extra people available to move the gear up and down trails to the beach is critical to the success of the work.

**2007-08 INTERIM RAZOR CLAM MANAGEMENT AGREEMENT
FOR COPALIS AND MOCROCKS BEACHES**

**ENTERED INTO BY THE STATE OF WASHINGTON
AND QUINAULT INDIAN NATION**

August 28, 2007

This agreement establishes principles, concepts, and procedures, which will govern the non-Indian and treaty tribal fisheries for razor clams at Copalis and Mocrocks Beaches.

1. EFFECTIVE DATE

This agreement is effective on August 28, 2007.

2. TERM

The term of this agreement is until August 27, 2008, unless superseded by another agreement.

Each year in August WDFW and the costal tribes sit down and discuss the population estimates and proposed total allowable catch (TAC) for the co-managed beaches; Copalis, Mocrocks and Kalaloch. The result of those discussion is a an agreed to Fishery Management Plan signed by policy representatives of each group that guides the management of the fisheries in the coming season.

	2015-16 TAC Share (clams)	2014-15 aver daily harvest (clams)
Long Beach	4,768,605	23,000
Twin Harbors	1,198,600	16,000
Copalis	1,094,781	38,200

This is a recap of the Total Allowable Catch that will guide WDFW during the 2015-16 season. We also list here the average daily catch during the 2014-15 season, by beach. Note that the average daily catch includes days with large crowds, excellent weather and good digging success and days with fewer people or poorer success (usually due to bad weather).

Dig with your kids, not for them . . .

Razor clamming is a fun and easy-to-learn activity that draws generations of families and friends to the Washington coast each year.

We understand that children have varying abilities when it comes to handling digging equipment. Adults may assist kids, but kids need to actively participate in the entire process of digging and gathering razor clams.

Watch our YouTube video online to see an example of how to dig razor clams with kids:
<http://www.youtube.com/thewdfw>



Also, please remember:

- Adults and youth age 15 and older need a license to dig razor clams; licenses are available at many local sporting goods retailers and online at wdfw.wa.gov;
- Everyone needs to dig his or her own limit, bring a separate container for his or her clams, and not dig more than the 15 clam limit;
- It is unlawful to dig for someone else or dig part of someone's limit, unless digging for a disabled harvester with a designated harvester card.
- You are required to keep the first 15 clams dug, regardless of size and condition. Wasting razor clams is against the law.

The Washington Department of Fish and Wildlife is asking for your help to ensure current and future generations continue to enjoy bountiful razor clam harvests.



For more on razor clam seasons, regulations, digging, and cooking your clams, visit WDFW's recreational razor clam website: <http://wdfw.wa.gov/fishing/shellfish/razorclams/>

**We hope you and your family
have a great time at the beach.**



**Still have questions
about razor clam digging?**

Call 360-249-4628



WDFW has produced a new video titled: "Razor Clams in Washington Digging with Kids"

Check it out
at:

http://youtu.be/gI9p_PparVk

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SEASON OPTIONS

What do you think????

- Fall and Winter and/or Spring season only?
- Weekends (Friday/Saturday or Saturday/Sunday)?
- Weekdays (especially if daylight tides) ?
- Fewer winter and more spring tides.
- Two days / twice a month ???

Feed back WDFW has received over the last several years is that most clam diggers like the season structure we've been using that allows for a few days of digging – each month – on as many beaches as possible.

Many coastal businesses have also said that such a season structure helps them by drawing people to coastal communities during periods of the year when fewer people would normally visit.

However, we are always open to suggestions and would be happy to hear any ideas about what might work better for you.

What do you think???

Feel free to email your
comments and suggestions
to: razorclams@dfw.wa.gov

Thank you for taking the time to review this presentation. We are interested in your opinions regarding our management of the razor clam resource and specifically any suggestions or comments you have on the way we might structure the 2014-15 season.

Email your comments to : razorclams@dfw.wa.gov

How to get updated razor clam season information:

WDFW Web Site: <http://wdfw.wa.gov/>

Shellfish Rule Change Hotline: 1-866-880-5431

Region Six (Montesano) 24 hour recording:
360-249-4628

E-mail distribution list :
sign up today at
razorclams@dfw.wa.gov



To add your email address to the WDFW razor clam email distribution list, send an email request to : razorclams@dfw.wa.gov

To be added to our e-mail update list, please send an email request to: razorclams@dfw.wa.gov

>>> Dan Ayres 08/14/03 12:26PM >>>

You are receiving this message because you have expressed interest in Washington State's recreational razor clam fishery. If you do not wish to receive future messages, please reply by return e-mail.

DOMOIC ACID UPDATE

The latest demonic acid levels were reported today(8/14/03) by the Washington Department of Health. Levels continue to drop on most all beaches, improving the chances for a fall season.

Long Beach Reserve; 3 ppm on 8/11/02 (down from 9 ppm on 7/15/03)

Twin Harbors Area CL; 17 ppm on 8/11/03 (up from 10 ppm on 7/15/03)

Copalis; 17 ppm on 8/11/03 (down from 36 ppm on 7/15/03)

Mocrocks; 12 ppm on 8/11/03 (down from 24 ppm on 7/21/03)

Kalaloch; 22 ppm on 8/10/03 (down from 28 ppm on 7/29/03)

You may be interested to know that we maintain an email distribution list for anyone specifically interested in razor clam related issues. The periodic updates sent out using this list include information on season openers, marine toxin levels and other pertinent topics. If you are interested in having your email address added to this list, please let us know by sending an email request to: razorclams@dfw.wa.gov



Thanks again for visiting this presentation!

Dan L. Ayres
Coastal Shellfish Manager
Washington State Department of Fish and Wildlife
Region Six
48 Devonshire Road
Montesano, WA 98563 USA
Telephone: 360-249-4628 (ext. 209)