

**STATE OF WASHINGTON
DEPARTMENT OF FISH AND WILDLIFE**

April 23, 2025

TO: Puget Sound Dungeness Crab Fishery Managers

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SUBJECT: Winter 2024 Dungeness Crab Recreational Catch Estimates

This memo summarizes the winter 2024 recreational Dungeness crab catch produced from three data sources: Catch Record Cards (CRCs) returned through the mail, CRCs reported through the internet and catch estimated from non-respondent CRC holders.

Catch is reported for Puget Sound Marine Areas 4 through 13. During the winter 2024 crab season, Area 13 and Area 12 south of Ayock Point were closed for the entire season (Table 1). Area 10 was open December 6 through December 31 and Area 11 was open November 4 through December 31 and crabbing was allowed seven days a week. Area 7 South (7S) and 7 North (7N) were open September 3 through December 31 and crabbing was allowed seven days a week. All remaining areas were open October 1 through December 31 and crabbing was allowed seven days a week.

Each year, separate summer and winter Dungeness crab catch record cards (CRCs) are issued. CRCs are issued only to fishers who purchased a crab endorsement and are required only in Puget Sound marine areas. Each Dungeness crab CRC is independent from the CRC for all other species. Winter crab CRCs were valid for the period September 3, 2024, through December 31, 2024. Crabbers purchasing endorsements before August 15 were only issued a summer CRC. Winter CRCs were available at no charge at license vendors on or after August 15. Crabbers who purchased endorsements after August 15 could obtain both summer and winter CRCs if they chose to. Crabbers who purchased endorsements after September 3 could only obtain a winter CRC. Crabbers were required to return their winter CRCs to the Department by February 1, 2025. Each crabber has the option to mail their CRC back to the Department, drop their card off at a regional office, or report their catch online through a site developed by the Department. The online reporting option was only available from January 1 through February 1, 2025. Anyone reporting online was required to enter a document number unique to their CRC to verify they were reporting from their card rather than from memory.

Crabbers were informed that they would be assessed a \$10.00 penalty in the form of an administrative fee on their next license purchase if they failed to report their winter catch by the deadline. Five rounds of e-mail reminders were sent to crabbers with an e-mail address on file.

The email reminders were sent on December 31 and January 7, 14, 21, and 28. Postcard reminders were mailed to those without an e-mail address on December 30. They were also reminded to return their card through social media ads and a WDFW blog post.

Census data from reported CRC's

A total of 33,743 fishers were issued winter Dungeness crab CRCs for the 2024 license year. A total of 16,660 crabbers returned their cards by mail, dropping them off at a regional office, or by reporting their catch online by the February 1, 2025, reporting deadline. Overall, 49.4% of crabbers reported their winter CRC (Table 2). Harvest from all the winter CRCs reported by mail and reported online were compiled into a single catch file and a harvest quantity was generated for each Puget Sound Marine Area from the reported CRCs and summarized into three catch categories based on the date of harvest (in-season catch, out of season catch, and catch reported with an unknown date; Table 3). In-season catch includes all reported catch that occurred during and between each area-specific opening and closing dates (see Table 1 for area-specific opening and closing dates). In-season catch also includes all catch from trips that reported a month of harvest that was open for the duration of the month, but did not specify the day on their card. Out-of-season catch includes all reported catch that occurred before the area-specific opening date or after the area-specific closing date. Out-of-season catch also includes all catch from trips that reported a month that was closed for the duration of the month but did not specify the day on their card. Unknown date catch includes all reported catch that did not report a month of harvest and all catch that reported a month that was partially open but did not specify the day.

Any catch reported in an area outside a Puget Sound Marine Area was excluded from the catch estimate. Reported catch in MA8 that did not specify 8-1 or 8-2 was distributed into 8-1 and 8-2 based on catch proportions for the three catch categories (in-season, out-of-season, and unknown date). Additionally, reported catch with an unknown area was distributed into a known Puget Sound area based on catch proportions calculated across all known areas (Table 4). These harvest data constitute a “census”, or known catch, assuming all catches were recorded on each harvester’s CRC and were correctly reported online.

Estimating Catch for Non-Reported CRCs

The total catch for crabbers that did not return their catch record cards (‘non-respondents’) was estimated based on the average catch per non-respondent determined through a winter 2023 telephone and email survey conducted by the research firm [Responsive Management](#). Following the 2023 winter season, randomly selected non-respondents were contacted via phone or email to acquire their winter season harvest. The average catch per card for the non-respondent group was less than the returned card group because of a higher proportion of “zero catch cards” due to the angler’s perception that zero catch cards do not need to be returned. Summary details used for generating the catch estimate for winter 2024 non-respondents based on the 2023 survey data are shown below.

Summary details used to estimate the winter 2024 catch for non-respondents

Number of non-respondents surveyed in winter 2023	2,044
Number of surveyed non-respondents retaining crab in winter 2023	403
Number of crabs retained by surveyed non-respondents in winter 2023	2,940
Average catch per surveyed non-respondent in winter 2023	1.43835
Total number of non-respondents in winter 2024	17,083
Total estimated number of crabs caught by non-respondents in winter 2024	24,571

Calculating total harvest for the winter recreational crab fishery by Marine Area.

The total harvest for the winter was calculated by combining the census catch from reported CRCs with the estimated catch of the non-respondents. The total non-respondent catch was distributed among each Marine Area based on the relative amount of catch reported on CRCs in each Marine Area (Table 6). A weight conversion of 1.8 pounds per crab was used to convert number of crabs to pounds harvested. The mean pounds per crab estimate is based on previous individual weight per crab data collected during dockside sampling of recreational catch.

Calculating total harvest for the winter recreational crab fishery by Crab Management Regions (and subregions).

Crab Management Regions (CMRs) are the primary spatial management areas used for Puget Sound Dungeness crab quota management. Some of these quota areas do not exactly align with the Marine Areas that crabbers use for reporting catch on CRCs, therefore total catch by CMR needs to be calculated for harvest tracking. Data from post-season surveys of crabbers who reported catch in Marine Areas 6, 7, and 9 were used to estimate the proportions used to convert catches from Marine Areas to the CMRs used for management.

Updated MA9, MA6, and MA7 Catch Surveys

The catch estimate for Marine Area 9 is divided into two portions. The portion of Marine Area 9 north of the Hood Canal bridge and south of a line from Foulweather Bluff to Olele Point is combined with Marine Area 12 for management purposes (Crab Management Region 5) and is identified as Area 25C in this document. Marine Area 9 (non-25C portion) refers to the remainder of Marine Area 9, including Port Townsend Bay and Admiralty Inlet (see Figure A6 for area details). Previously, the percentage of Marine Area 9 catch taken from Area 25C was estimated using a ratio derived from a random telephone survey conducted in 2011 of fishers who reported catch from Marine Area 9. Results of the 2011 survey estimated that 28% of the crab harvested in Marine Area 9 are taken from Area 25C. The same survey was conducted in 2024 by sending fishers who reported catch from Marine Area 9 an online survey form to complete. Results of the online survey conducted in 2024 estimated that 15.2% of crab harvested in Marine Area 9 were taken from Area 25C.

The catch estimate for Marine Area 6 is divided into four crab management subregions (6A [Region 1 portion of MA 6], 6B [Region 3-1], 6C [Region 3-2], and 6D [Region 3-3]; Figure A7). The Region 1 portion of MA6 is combined with Marine Area 7 for management purposes (Crab Management Region 1) and is identified as Area 6A in this document. Results of the 2024

online survey estimated that 5.7% of Dungeness crab harvested in Marine Area 6 is taken from the Region 1 portion (6A), 5.1% from the 3-1 portion (6B), 87.8% from the 3-2 portion (6C), and 1.4% from the 3-3 portion (6D).

The catch estimate for Marine Area 7 is divided into two crab management subregions, 7A (Region 3-1 portion of MA7) and the remainder of MA7 (Region 1). The Region 3-1 portion of MA7 is combined with Crab Management Region 3-1 and is identified as Area 7A in this document. Results of the 2024 online survey estimated that 5.3% of Dungeness crab harvested in Marine Area 7 were taken from the 7A portion.

Table 6 shows how the catches by Marine Area are combined or partitioned to determine the catch by CMR based on data from crabber surveys and/or overlap with established Marine Area boundaries. The final harvest totals as shown in Table 7 reflect the conversion of catch from Marine Areas to CMRs and includes the addition of an expansion factor of 9.97% (Hankin et al., 2021) to account for the Estimated Unrecorded Catch (EUC; harvested crabs that are not recorded on CRCs or crabs harvested illegally). A total of 219,456 pounds of crabs were estimated to be harvested during the Puget Sound recreational crab fishery during the 2024 winter season.

Total harvest for the complete 2024 season (summer and winter seasons combined) is shown in Table 8.

References

Hankin, D., Armstrong, D., Sampson, D. *Report of the Technical Review Panel: Unreported Catch in the Puget Sound Recreational Fishery for Dungeness crab.* Final Dispute Resolution Report (US v. Washington – Subproceeding No. 89-3 Shellfish Implementation Plan). March 2021.

Table 1. Summary of recreational seasons by Puget Sound marine area for the winter 2024 crab fishery.

Marine Area	Season	Weekdays Open	Open Days
4	October 1 - December 31	Monday - Sunday	92
5	October 1 - December 31	Monday - Sunday	92
6	October 1 - December 31	Monday - Sunday	92
7 South	September 3 - December 31	Monday - Sunday	120
7 North	September 3 – December 31	Monday - Sunday	120
8-1	October 1- December 31	Monday - Sunday	92
8-2	October 1- December 31	Monday - Sunday	92
9	October 1- December 31	Monday - Sunday	92
10	December 6 – December 31	Monday - Sunday	26
11	November 4 – December 31	Monday - Sunday	58
12	October 1- December 31	Monday - Sunday	92
13	None	None	0

**The portion of Marine Area 12 south of Ayock Point was closed to recreational crabbing for winter 2024.*

Table 2. Fishers issued CRCs and percentages that reported their CRC by season, 2007-2024.

Summer	CRCs Issued	CRCs Reported Mail	CRCs Reported Online	CRCs Reported	CRCs Unreported	Endorsements Entire Year
2007	210,327	34,400 (16%)	32,373 (15%)	66,773 (32%)	143,554 (58%)	226,063
2008	210,893	26,037 (12%)	43,919 (21%)	69,956 (33%)	140,937 (67%)	215,643
2009	236,665	37,128 (16%)	72,172 (30%)	107,300 (45%)	129,365 (55%)	241,226
2010	208,462	29,406 (14%)	77,472 (37%)	107,418 (52%)	101,044 (48%)	213,013
2011	230,355	31,222 (14%)	89,095 (39%)	120,317 (52%)	110,038 (48%)	237,129
2012	200,711	26,504 (13%)	79,895 (40%)	106,399 (53%)	94,312 (47%)	209,957
2013	214,692	26,236 (12%)	90,379 (42%)	116,615 (54%)	98,077 (46%)	222,050
2014	213,741	25,296 (12%)	91,270 (43%)	116,566 (55%)	97,175 (45%)	223,184
2015	232,621	25,685 (11%)	94,336 (41%)	120,021 (52%)	112,600 (48%)	243,934
2016	216,977	23,734 (11%)	90,262 (42%)	113,996 (53%)	102,981 (47%)	223,443
2017	215,929	33,252 (15%)	72,601 (34%)	105,853 (49%)	110,076 (51%)	222,222
2018	200,962	31,316 (16%)	72,790 (36%)	104,106 (52%)	96,856 (48%)	207,557
2019	192,798	29,006 (15%)	69,087 (36%)	97,571 (51%)	95,227 (49%)	200,113
2020	213,831	23,716 (11%)	53,029 (25%)	76,745 (36%)	137,086 (64%)	222,181
2021	225,282	27,534 (12%)	75,254 (33%)	102,788 (46%)	122,494 (54%)	233,108
2022	210,725	20,545 (10%)	68,164 (32%)	88,709 (42%)	122,016 (58%)	221,150
2023	185,455	22,847 (12%)	59,100 (32%)	81,947 (44%)	103,508 (56%)	194,652
2024	187,214	20,475 (11%)	60,616 (32%)	81,091 (43%)	106,123 (57%)	198,552
Winter						
2007	157,905	10,281 (7%)	6,388 (4%)	16,669 (11%)	141,236 (89%)	226,063
2008	207,143	10,993 (5%)	10,871 (5%)	21,864 (11%)	185,279 (89%)	215,643
2009	89,259	11,909 (13%)	27,382 (31%)	39,291 (44%)	49,968 (56%)	241,226
2010	70,763	9,633 (14%)	27,346 (39%)	36,979 (52%)	33,784 (48%)	213,013
2011	28,514	4,675 (16%)	13,899 (49%)	18,574 (65%)	9,940 (35%)	237,129
2012	27,711	4,508 (16%)	13,357 (48%)	17,865 (65%)	9,846 (35%)	209,957
2013	29,638	4,419 (15%)	15,223 (51%)	19,642 (66%)	9,996 (34%)	222,050
2014	35,371	5,040 (14%)	17,401 (49%)	22,441 (63%)	12,930 (37%)	223,184
2015	36,398	5,039 (14%)	18,284 (50%)	23,323 (64%)	13,075 (36%)	243,934
2016	26,591	5,777 (22%)	10,577 (40%)	16,534 (62%)	10,057 (38%)	223,443
2017	23,277	4,431 (19%)	9,746 (42%)	14,177 (61%)	9,100 (39%)	222,222
2018	24,620	3,906 (16%)	9,896 (40%)	13,802 (56%)	10,818 (44%)	207,557
2019	23,578	4,178 (18%)	8,520(36%)	12,698 (54%)	10,880 (46%)	200,113
2020	36,459	5,015 (14%)	13,178 (36%)	18,193 (50%)	18,266 (50%)	222,181
2021	26,843	3,894 (15%)	9,591 (36%)	13,485 (50%)	13,358 (50%)	233,108
2022	37,900	5,173 (14%)	13,226 (35%)	18,399 (49%)	19,501 (51%)	221,150
2023	32,975	4,662 (14%)	10,542 (32%)	15,204 (46%)	17,771 (54%)	194,652
2024	33,743	4,474 (13%)	12,187 (36%)	16,660 (49%)	17,083 (51%)	198,552

**Percentages shown are rounded to the nearest full percent*

Table 3. Recreational harvest from all reported CRCs by Marine Area for winter 2024.

Marine Area	In-Season Catch (# crab)	Out-of-Season Catch (# crab)	Unknown Date Catch (# crab)	Total Crab
4	98	0	0	98
5	303	8	0	311
6	7,939	117	0	8,056
7	20,855	269	15	21,139
8	129	15	0	144
8-1	7,637	99	0	7,736
8-2	11,983	161	6	12,150
9	14,063	133	0	14,196
10	5,418	297	0	5,715
11	11,620	112	0	11,732
12	4,917	40	0	4,957
13	0	8	0	8
Unknown	17	37	0	54
Total	84,979	1,296	21	86,296

Table 4. Recreational harvest from all reported CRCs by Marine Area for winter 2024 after apportioning catch reported in MA8 without specifying 8-1 or 8-2 and catch reported in an unknown area.

Marine Area	In-Season Catch (# crab)	Out-of-Season Catch (# crab)	Unknown Date Catch (# crab)	Total Crab
4	98	0	0	98
5	303	8	0	311
6	7,941	120	0	8,061
7	20,859	277	15	21,151
8-1	7,689	108	0	7,797
8-2	12,064	175	6	12,245
9	14,066	137	0	14,203
10	5,419	306	0	5,725
11	11,622	115	0	11,737
12	4,918	41	0	4,959
13	0	8	0	8
Total	84,979	1,295	21	86,295

Table 5. Total recreational harvest from all reported CRCs for winter 2024 and the amount of harvest estimated for non-respondents.

Marine Area	Total Census Crab (# Crab)	Census Catch Proportion	Non-Respondent Catch (# Crab)	Total Catch (# Crab)	Total Pounds (lbs.)
4	98	0.001	28	126	227
5	311	0.004	89	400	720
6	8,061	0.093	2,295	10,356	18,641
7	21,151	0.245	6,022	27,173	48,911
8-1	7,797	0.090	2,220	10,017	18,031
8-2	12,245	0.142	3,487	15,732	28,318
9	14,203	0.165	4,044	18,247	32,845
10	5,725	0.066	1,630	7,355	13,239
11	11,737	0.136	3,342	15,079	27,142
12	4,959	0.057	1,412	6,371	11,468
13	8	0.000	2	10	18
Total	86,295	1.000	24,571	110,866	199,560

Table 6. Conversion of Marine Areas to Crab Management Regions used for harvest quota management.

Crab Management Region	Marine Area(s)
1	7 (94.7%), 6 (5.7 %)
2E	8-1, 8-2
2W	9 (84.8%)
3-1	6 (5.1%), 7 (5.3%)
3-2	6 (87.8%)
3-3	6 (1.4%)
3-4	4, 5
4	10
5	9 (15.2%), 12
6	11
7	13

Table 7. Complete winter 2024 recreational harvest from all reported CRCs by Crab Management Region after splitting and combining the Marine Areas as denoted in Table 6 and adding the Estimated Unreported Catch (EUC; 9.97%).

Crab Management Region	Marine Area(s)	Total Pounds (lbs.)	Estimated Unreported Catch (EUC; lbs.)	Total Estimated Crab Catch (lbs.)
1	6 (5.7%), 7 (94.7 %)	47,381	4,724	52,105
2E	8-1, 8-2	46,349	4,621	50,970
2W	9 (84.8%)	27,853	2,777	30,630
3-1	6 (5.1%), 7 (5.3%)	3,543	353	3,896
3-2	6 (87.8%)	16,367	1,632	17,999
3-3	6 (1.4%)	261	26	287
3-4	4, 5	947	94	1,041
4	10	13,239	1,320	14,559
5	9 (15.2%), 12	16,460	1,641	18,101
6	11	27,142	2,706	29,848
7	13	18	2	20
Total	-	199,560	19,896	219,456

Table 8. Total recreational harvest estimates for the 2024 year by season and area, including all reported CRCs and catch estimated from non-reported CRCs (includes EUC).

Crab Management Region	Marine Area(s)	Total Summer Crab Catch (lbs.)	Total Winter Crab Catch (lbs.)	Total 2024 Crab Catch (lbs.)
1	6 (5.7%), 7 (94.7 %)	412,480	52,105	464,585
2E	8-1, 8-2	594,280	50,970	645,250
2W	9 (84.8%)	125,546	30,630	156,176
3-1	6 (5.1%), 7 (5.3%)	28,778	3,896	32,674
3-2	6 (87.8%)	104,551	17,999	122,550
3-3	6 (1.4%)	1,667	287	1,954
3-4	4, 5	5,283	1,041	6,324
4	10	75,408	14,559	89,967
5	9 (15.2%), 12	59,065	18,101	77,166
6	11	60,339	29,848	90,187
7	13	207	20	227
Total	-	1,467,604	219,456	1,687,060

Appendix A: 2024 Winter CRC Data Summaries

Figure A1: Total Dungeness crab reported per CRC holder as a percentage of CRC respondents, Winter 2024.

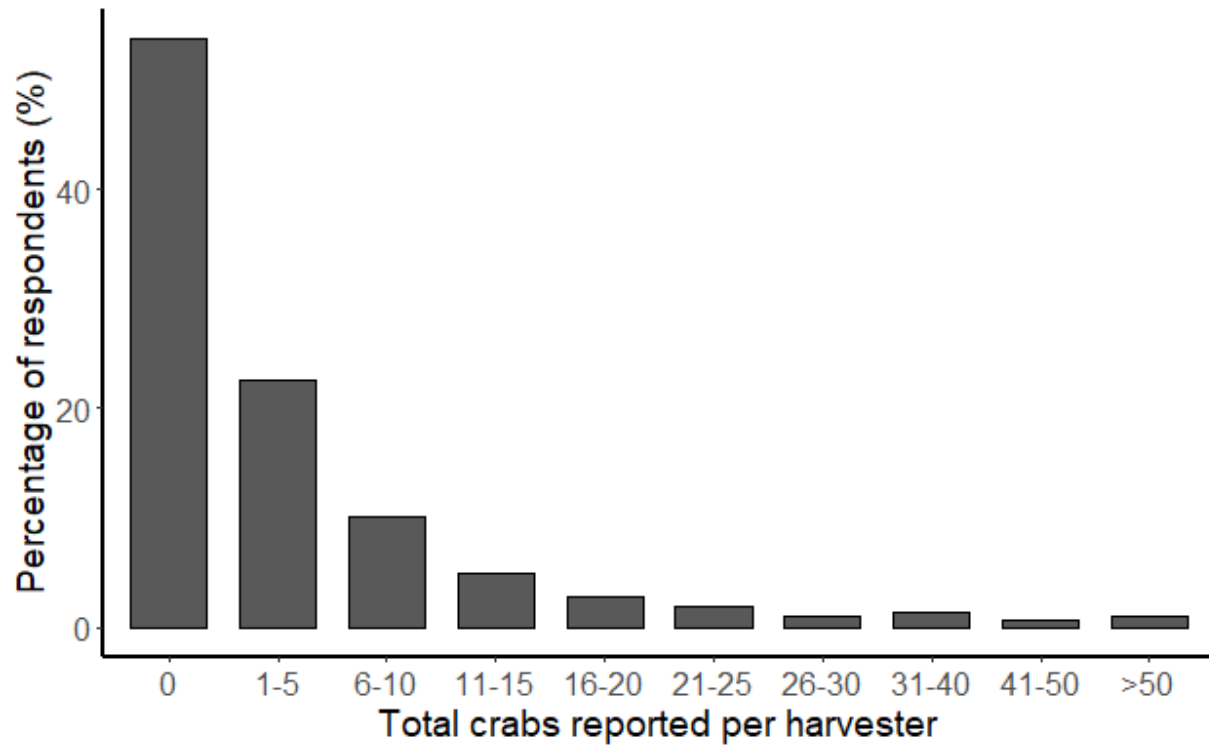


Figure A2: Total trips reported per CRC license holder as a percentage of CRC respondents, Winter 2024.

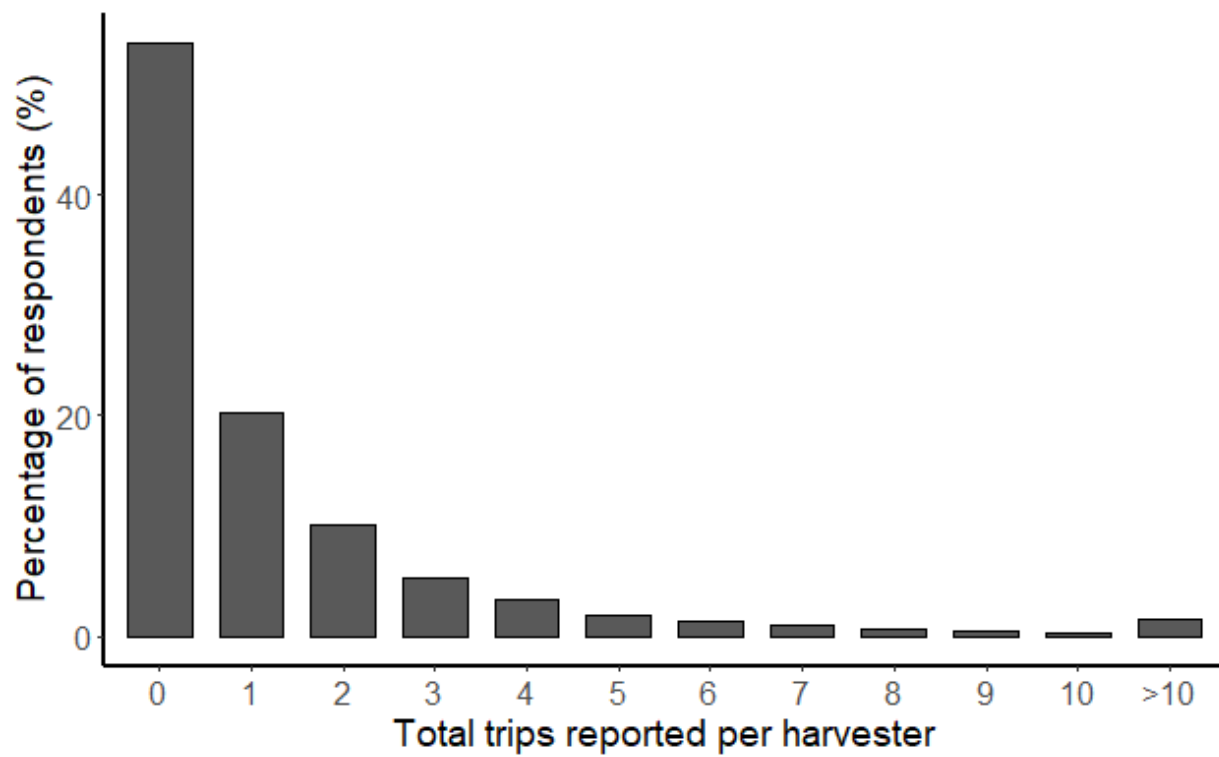


Figure A3: Histograms showing total catch reported on winter 2024 CRCs by Marine Area. Trips with unknown Marine Areas are not shown.

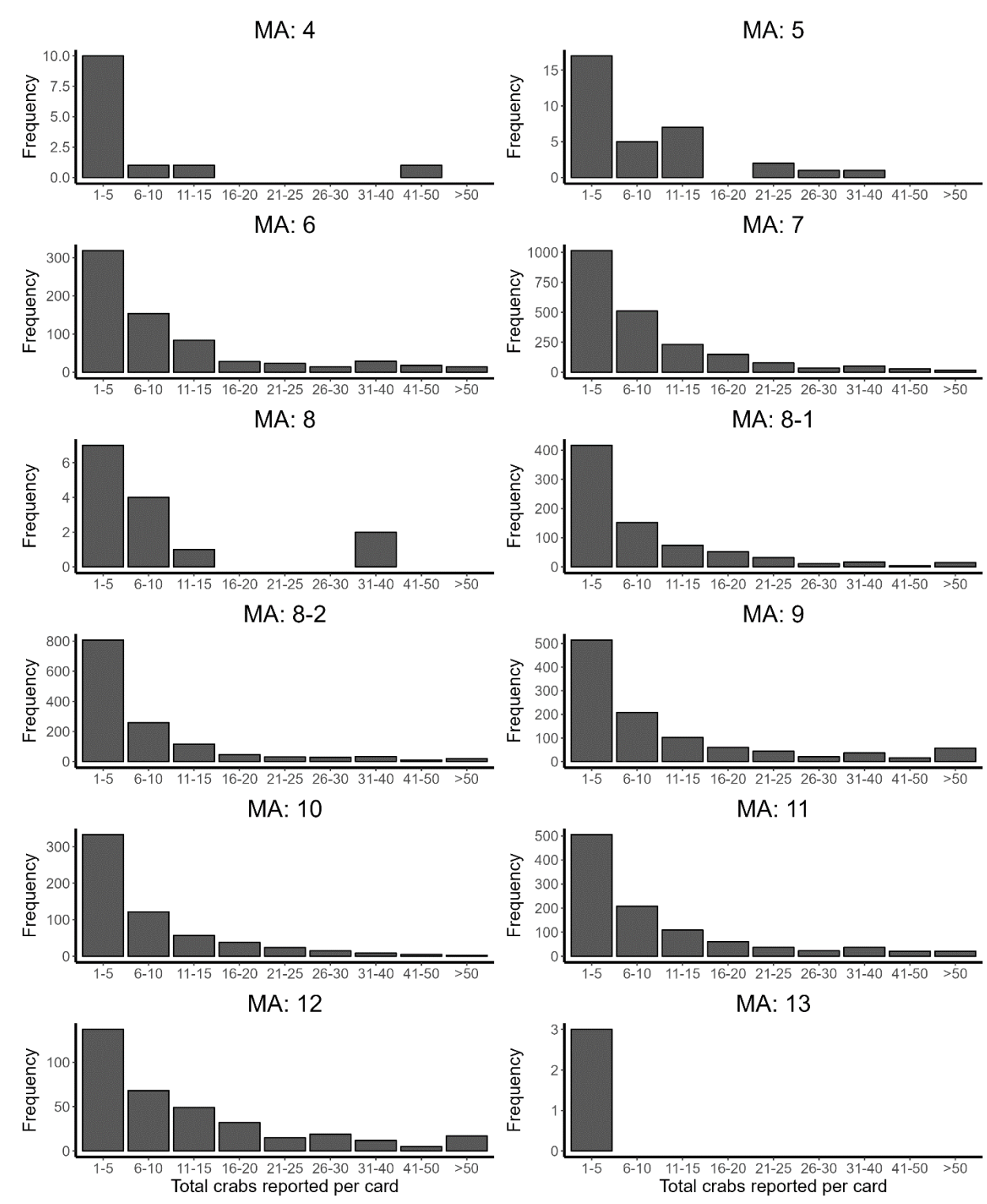


Figure A4: Average number of Dungeness crab reported for a successful trip by Marine Area. Error bars represent ± 1 standard deviation surrounding the mean crab per successful reported trip for each Marine Area. Only trips with at least 1 crab reported are used in the calculation. Trips with an unknown area are not shown.

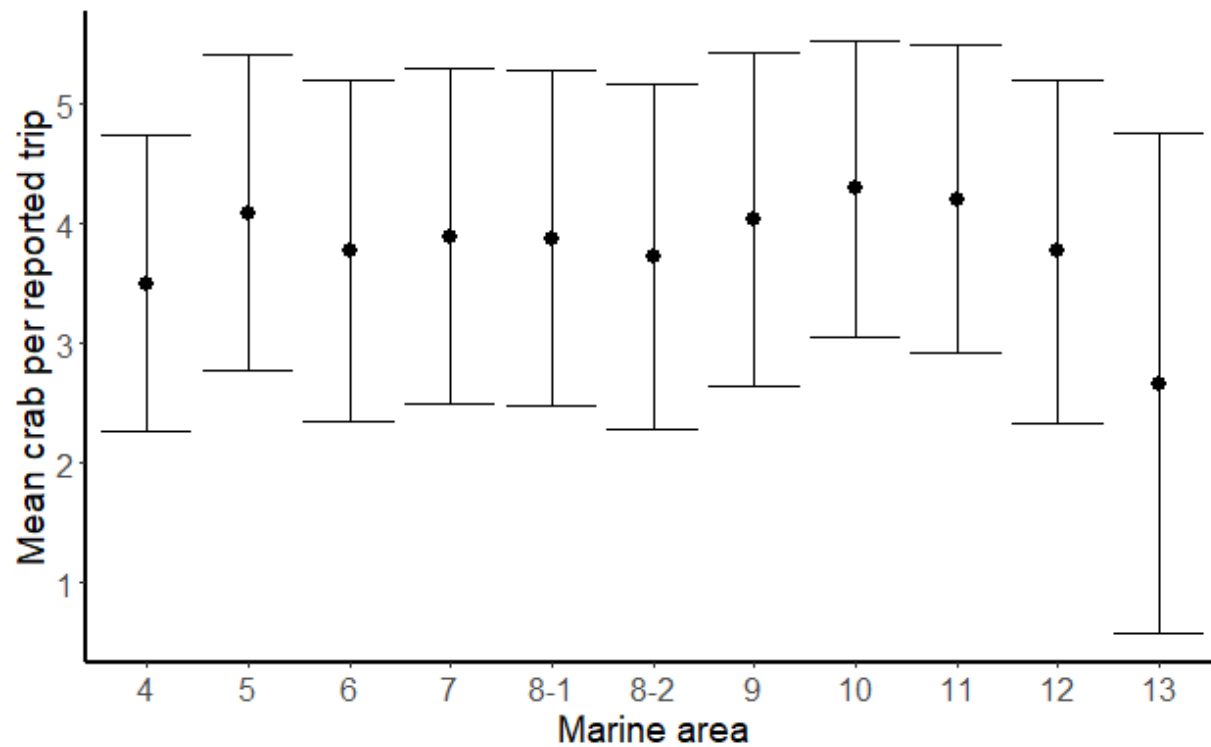


Figure A5: Total number of successful trips by Marine Area during the winter 2024 recreational crab season. Only trips with at least one crab reported are included. Trips with unknown Marine Areas are not shown.

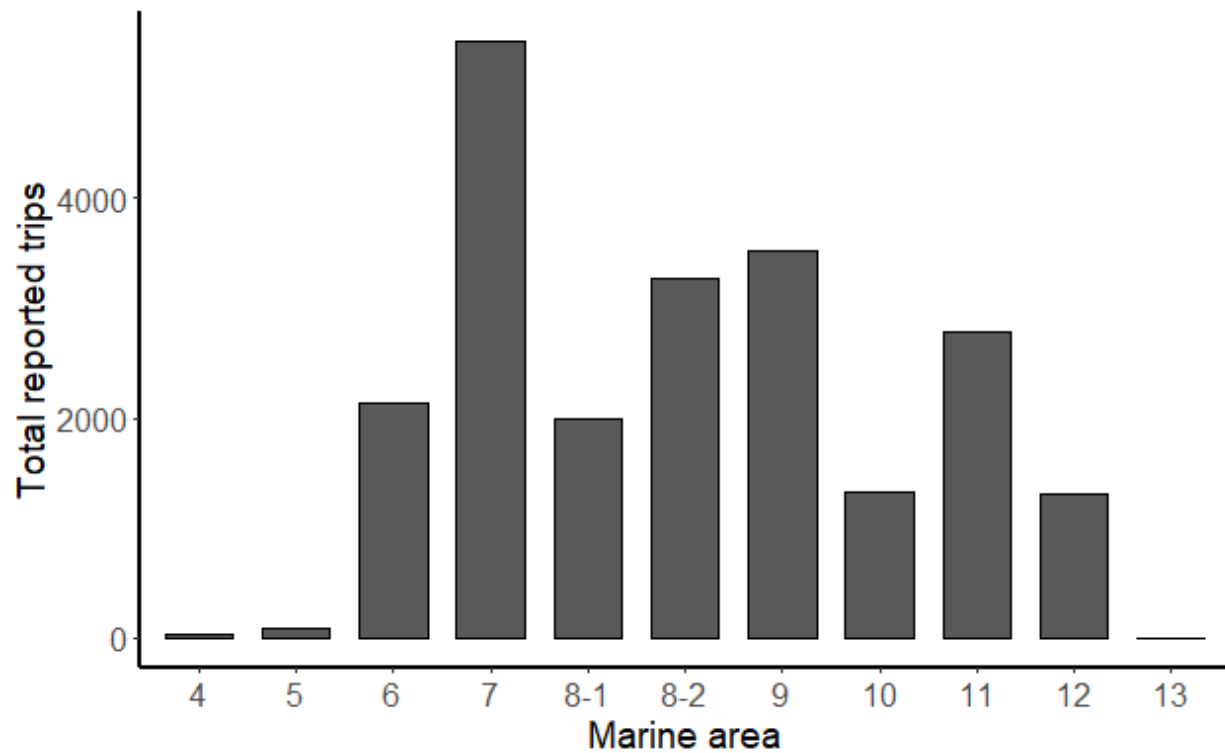


Figure A6: Map of Marine Area 9 with the 9A (25C) sub-area used in the 2024 online catch survey.

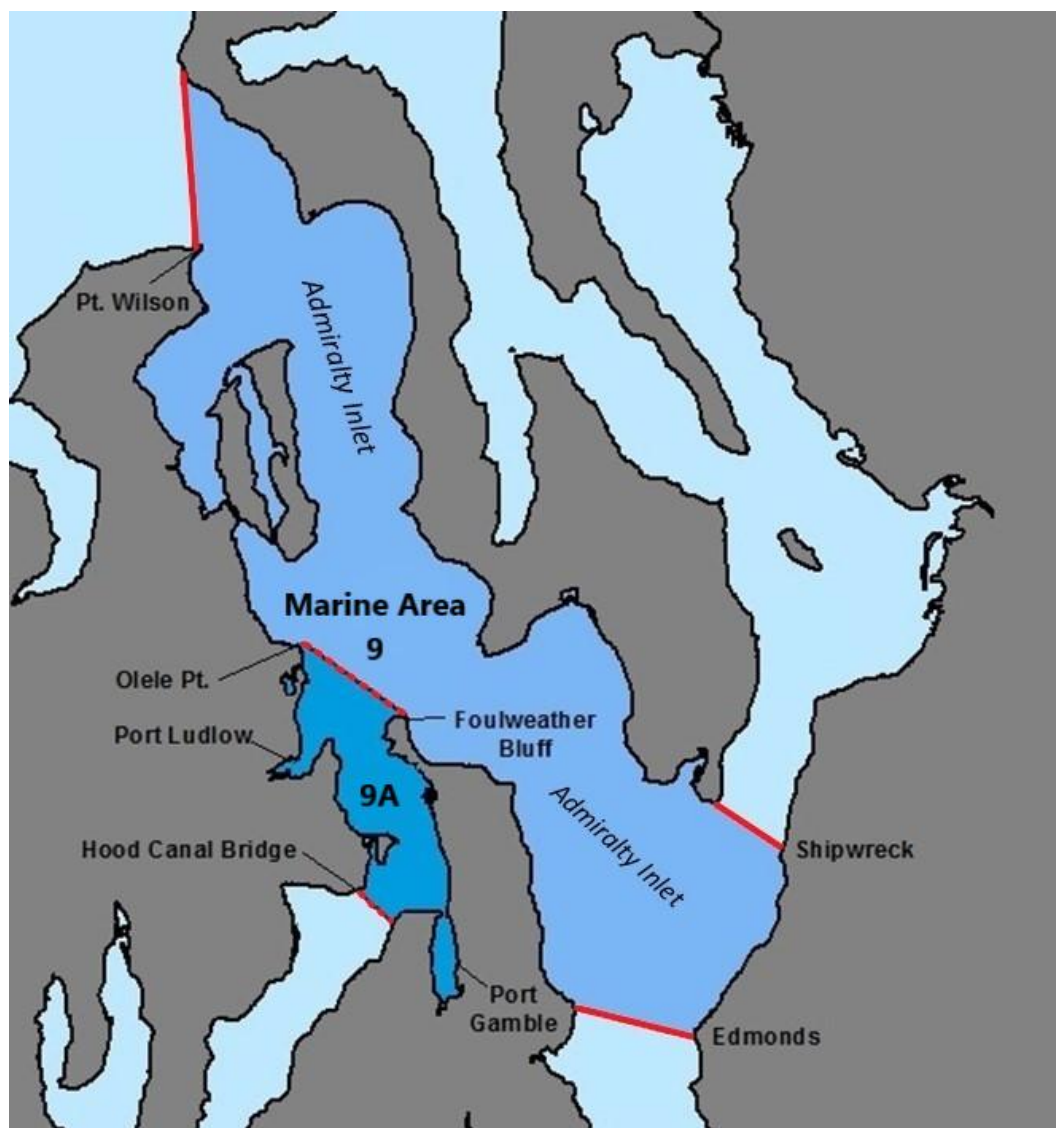


Figure A7: Map of Marine Area 6 with the 6A (Region 1 portion of MA6), 6B (Region 3-1), 6C (Region 3-2), and 6D (Region 3-3) sub-areas used in the 2024 online catch survey.

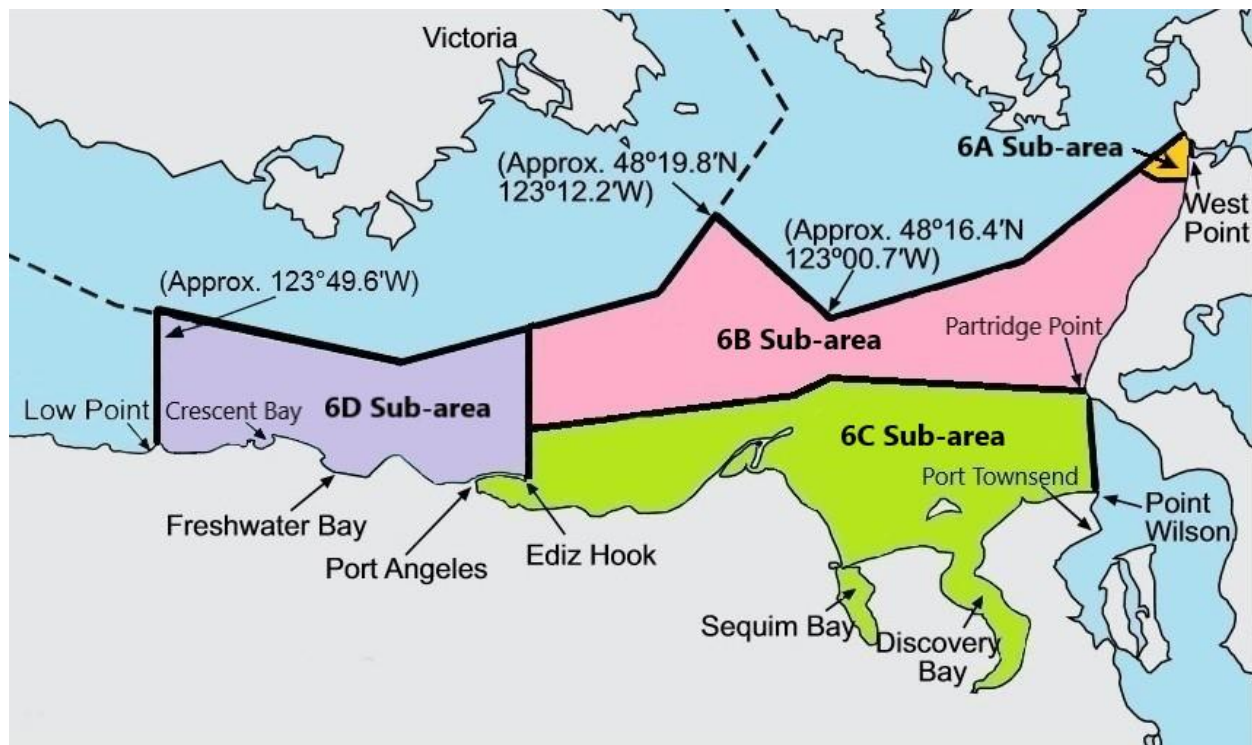


Figure A8: Map of Marine Area 7 with the 7A (Region 3-1 portion of MA7) sub-area used in the 2024 online catch survey.

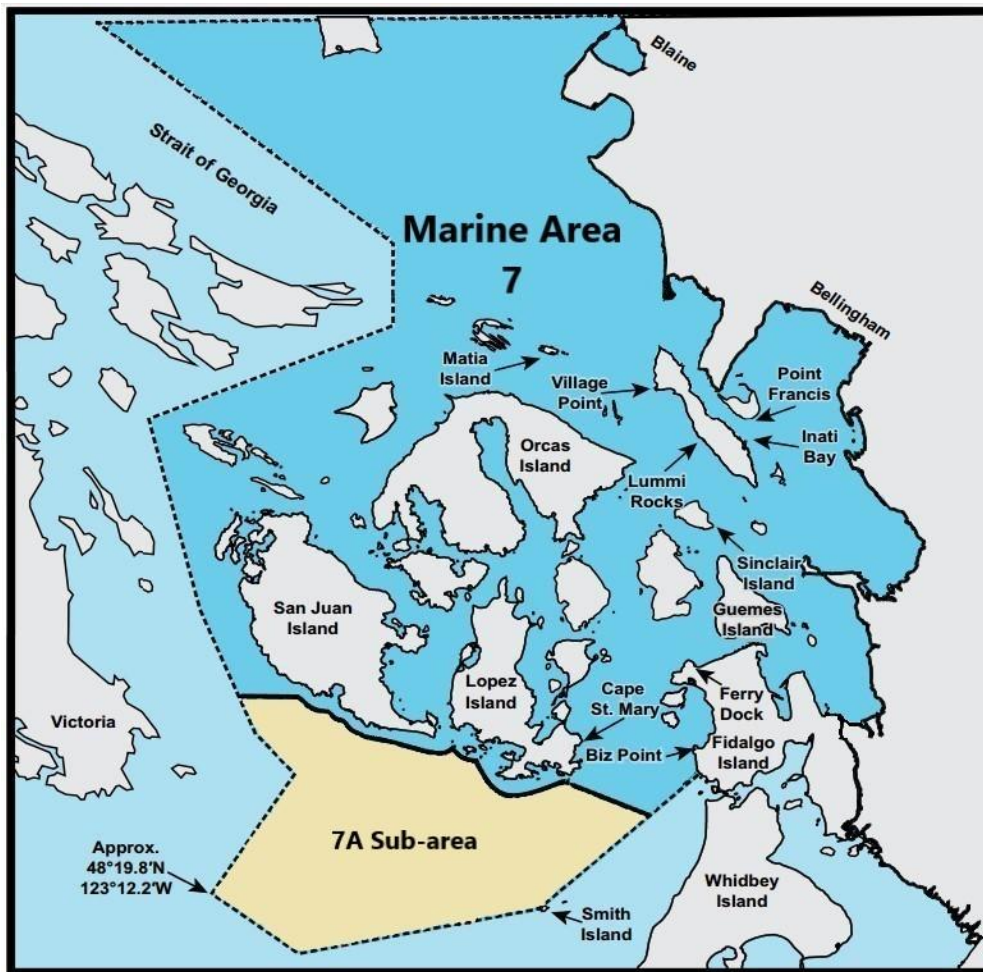


Table A1: Total number of successful trips reported on CRCs by month and Marine Area for winter 2024.

Marine Area	Pre-season (February - August)	September	October	November	December	Post-season (January 2025)
4	0	0	3	19	6	0
5	0	2	13	34	27	0
6	12	10	1,137	493	476	8
7	32	3,770	907	430	283	3
8	0	4	24	6	7	0
8-1	5	19	930	491	552	0
8-2	29	18	1,347	840	1,030	2
9	1	28	1,431	1,129	931	7
10	1	4	26	27	1,271	3
11	6	2	9	1,451	1,316	6
12	3	5	492	420	393	2
13	0	0	0	3	0	0