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FINAL REPORT

PORT GARDNER AND SKAGIT COUNTY 2011 DERELICT FISHING GEAR PROJECT

PREPARED FOR:

NORTHWEST STRAITS FOUNDATION

PREPARED BY:

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June 30, 2011

Introduction

Abandoned, lost and discarded crab pots can present economic and environmental impact issues in marine waters. Every year pot gear is lost due to entanglement with debris, vessel hits and vandalism. Identification, location and safe removal of derelict crab pots can reduce these destructive impacts of derelict fishing gear, as has been demonstrated in derelict gear removal projects previously conducted in Washington waters of the Salish Sea within the Northwest Straits Foundation (NWSF) operation area.

Funding from the Washington Department of Fish and Wildlife (WDFW) and Washington Department of Natural Resources (DNR) and other sources was provided to the NWSF for derelict crab pot survey and removal operations. The NWSF contracted with Natural Resources Consultants, Inc. (NRC), to manage the project. The removal operations were coordinated with the WDFW, Snohomish County, Skagit County, Tribal governments, NOAA, the U.S. Fish and Wildlife Service (USFWS) and the U.S. Coast Guard (USGC).

Scope of Work

This project consisted of a total of 8.5 days of sidescan sonar fieldwork and one day post-survey processing, followed by twenty days of dive removal work for derelict crab pot targets.

Of the total, 1.5 days of sidescan sonar fieldwork, 0.5 day post-survey processing and seven days of dive removal operations were to be conducted in the commonly fished areas of Port Gardner. Previous surveys and derelict crab pot removal projects conducted in both 2008 and 2009 cleared a specific study area of nearly all derelict pots providing a baseline from which future derelict gear surveys of the same area would allow estimation of the loss rate of derelict pots in these fisheries. This information is valuable to WDFW and Tribal fishery managers in assessing the overall impact of derelict fishing gear in the area and provides additional information on the effectiveness of public information programs aimed at reducing fishing gear loss. A portion of this project entailed re-surveying the study area with sidescan sonar and investigating and/or removing newly lost derelict crab pots to ascertain the number of pots lost during the 2009/2010 crab fishing season. During derelict crab pot removal, an onboard biologist recorded the use and decomposition status of escape cord and the number of live and dead crab in pots. Similar data has been collected during removal projects before and after a Snohomish County Marine Resources Committee (MRC) sponsored escape cord education program in Port Gardner allowing an assessment of the success of this program. The full examination and comparison of crab pot loss, pot condition, and escape cord usage inside the previously cleaned study area will be provided in a supplement to this report.

The remaining seven days of sidescan sonar fieldwork, 0.5 day post survey processing, and 13 days of dive removals took place in Skagit County along the outer limits of

Padilla Bay between Anacortes and Samish Island, and off the northern shore of Samish Island in western Samish Bay. This area was chosen due to high fishing effort and vessel traffic. WDFW resource managers requested that survey and removal efforts be concentrated at water depths of 60 feet and less in this area.

Methodology

Sidescan Sonar Survey

Fenn Enterprises performed the sidescan sonar surveys on January 3 and 4, 2011, in Port Gardner and adjacent areas followed by 0.5 days of post-survey processing. Sidescan sonar surveys were conducted in Skagit County along the outer portion of Padilla Bay, from Anacortes to Williams Point, and along the north end of Samish Island in southwest Samish Bay on May 23 through 27 and June 3, 2011. A Marine Sonic sidescan sonar system operating at 600 kHz with a differential global positioning system (DGPS) was used during the survey to locate derelict fishing gear. The sonar system employed a heavy towfish, towed off the stern of a 40-foot survey vessel. A hydraulic winch and cable controlled the depth of the towfish. The sidescan sonar image was projected on a monitor onboard the vessel and recorded onto a computer hard drive for later processing.

Generally, the sidescan sonar survey was conducted at 4.63 km/hr (2.5 knots) with a path width of 50 m on either side of the boat for an approximate area swept of 90 m (295 ft). The survey path width was occasionally decreased to 10 to 20 m on either side of the boat in shallow water (less than 5 m deep) or when a more detailed image of an object was desired. Survey depths in Port Gardner generally ranged from about 3 m (10 ft) to 32 m (105 ft) in order to identify derelict fishing gear within the dive depth capabilities of the recovery team. Similarly, in Skagit County survey depths ranged from 3 m (10 ft) to 32 m (105 ft), however the majority of the survey focused on depths less than 18 m (60 ft).

The intent of the 2011 sidescan sonar survey in Port Gardner was to locate derelict crab pots to be removed from the 2008 and 2009 cleaned study area and, if time allowed, to further survey derelict crab pots outside the cleaned study area. The intent of the Skagit County surveys was to locate derelict crab pots in a known heavy fishing effort and high vessel traffic area, and gain better understanding of the amount of derelict crab pots in the area, while identifying targets for removal.

Counts and precise locations of derelict fishing gear were recorded during post-survey processing of the data. The products from the sidescan sonar survey included a trackline file of the area surveyed, calculation of the area covered and the positions (latitude and longitude) of likely derelict fishing gear targets found (Figure 1).

Derelict Fishing Gear Removal

Fenn Enterprises was contracted to conduct the dive recovery operations of crab pots in the Port Gardner area. Two divers equipped with SCUBA operated off a 40-foot dive support and gear recovery vessel, the R/V *Surveyor II*. Doug Monk Diving was contracted to conduct the dive recovery operations of crab pots in Skagit County. Two divers equipped with surface supplied air operated off a 40-foot dive support and gear recovery vessel, the F/V *Bet-Sea*. A list of the precise locations of derelict crab pots detected during the sidescan sonar survey was used by the onboard biologist and dive team to locate derelict pots using a wide area augmentation (WAAS) GPS and electronic navigation software (Nobeltec®). Derelict gear target locations derived from the sidescan sonar survey were transferred into the Nobeltec software as waypoints and plotted over navigation charts of the Port Gardner and Skagit County areas.

Using the WAASGPS system, the dive support vessel was directed to the exact location of the potential derelict gear target identified by the sidescan sonar survey. When the vessel arrived at the target location, a clump weight
with a line and float was deployed at the target location. The dive support vessel was then anchored in the vicinity of the clump weight or drifted nearby and a single diver was deployed. A second, safety backup diver stood by on deck. A 30 m (100 ft) length of rope was passed through a loop on the rope near the clump weight and the diver held the other end. Typically the clump weight, and therefore, the diver, landed within two meters of the derelict gear target, however when poor water visibility conditions were encountered, the diver would drag the 30 m rope around the clump weight in a circle until it tangled with the derelict fishing gear and then the diver worked back along the rope to the gear.

A variety of information about the derelict crab pot was reported by the diver to the biologist or observed directly onboard the support vessel. Information collected included whether the derelict pot was commercial or sport, whether it was equipped with escape cord, whether the gear was actively fishing or not, the number of live and dead Dungeness crab, and other crab and fish entrapped. Also reported was information about the overall condition of the gear and the depth and type of seabed where the gear was located. The derelict gear was freed by hand by the diver, a recovery line from the vessel was attached and it was hauled aboard the recovery vessel with a hydraulic winch. The onboard biologist further inspected the gear at the surface and looked for owner identification information.

During removal operations at Port Gardner, the derelict fishing gear was stored in a locked secure waste container in the parking lot of the 11th street public boat ramp in the Port of Everett until disposal at the Snohomish County solid waste facility. If the owner of the pot could be determined, , the owner was contacted and allowed the opportunity to recover their fishing gear at no cost. In Skagit County, recovered derelict pots were

offloaded at the end of each working day, and either stored in a safe location for owner recovery, or taken to the Skagit River Steel facility for recycling.

Results

Sidescan Sonar Survey and Pot Removals: Port Gardner

In the 1.5 days of sidescan sonar surveys conducted in Port Gardner on January 3 to 4, 2011, 4.05 km^2 were covered and 163 potential derelict crab pot targets were detected or 40.2 targets/km^2. Two debris items were identified; one as a possible derelict net, and one derelict vessel (approximately 16' in length). The possible net target was investigated and identified as wood debris. One crab pot target proved to be an anchor with chain, five targets were investigated but nothing was found, one target was found buried in sediment and left in place, and one target was not investigated due to its immediate proximity to naval facilities. A total of 131 targets were found to be derelict fishing gear (129 crab pots, 2 crab rings) that were removed by divers, and 11 additional pots were found within close proximity to sidescan targets and removed during dive operations for a total of 140 derelict crabs removed or disabled (Table 1). Twenty-four of the original sidescan sonar targets were identified as actively fishing pots with buoys that were retrieved by fishers before removal operations took place. This was apparent as buoys were seen in the fishing grounds during the sidescan sonar surveys. Eliminating the known debris items, targets not found, and actively fishing pots not present at total of 133 derelict crab pot targets were identified or 32.8 targets/ km^2 (Figure 2). Table 1 provides the characteristics of pots removed in Port Gardner.

Sidescan Sonar Survey and Pot Removals: Skagit County

In the seven days of sidescan sonar surveys conducted in Skagit County on May 23 through 27 and June 3, 2011, 13.54 km^2 were covered and 673 potential derelict crab pot targets were detected or 49.7 targets/km^2. Thirteen potential crab pot targets proved to be debris such as, anchors, bundles of line, concrete blocks, cables and chain. Six targets were investigated but nothing was found, three targets were found buried in sediment and left in place, two targets were identified as duplicates of adjacent targets detected on alternative survey transects, and 322 targets were not investigated due to time limitations. A total of 330 targets were found to be derelict fishing gear (328 crab pots, 1 shrimp pot, and 1 crab ring) that were removed or left in place by divers (3 pots), and 17 additional derelict pots and one crab ring were found within close proximity to sidescan targets and removed during dive operations (Figure 3). Table 2 provides the characteristics of the derelict pots removed in Skagit County.

Sidescan Sonar Survey and Pot Removals: Port Gardner and Skagit Co.

In the 8.5 days of sidescan sonar surveys conducted in Port Gardner and Skagit County 17.59 km^2 were covered and 836 potential derelict crab pot targets were detected or 47.52

targets/km^2. Fourteen potential crab pot targets proved to be debris such as, anchors, bundles of line, concrete blocks, cables and chain. Eleven targets were investigated but nothing was found, four targets were found buried in sediment and left in place, two targets were identified as duplicates of adjacent targets, and 323 targets were not investigated due to time limitations and location. Twenty-four targets in Port Gardner were identified as actively fishing due to the buoys present on the surface, and were removed from the fishing grounds prior to gear removal operations. A total of 461 targets were found to be derelict fishing gear (457 crab pots, 1 shrimp pot, and 3 crab rings) that were removed or left in place by divers (4), and 28 additional pots and one crab ring were found within close proximity to sidescan targets and removed during dive operations. Table 3 provides the characteristics of derelict pots removed in both Port Gardner and Skagit County combined.

Derelict Crab Pot Removal: Port Gardner and Skagit Co.

Derelict fishing gear was removed from Port Gardner on April 26, 27, 29, 30, May 1, 3, 4, 2011, and in Skagit County on June 5, 6, 10, 14 through 17, 22 through 26, 2011. A total of 482 crab pots, three crab rings and one shrimp pot were removed. A total of 454 of the derelict crab pots, three crab rings and one shrimp pot removed were identified in the sidescan sonar surveys, and 18 derelict pots and one crab ring, not identified in the survey were found adjacent to surveyed pots and removed. Derelict crab pots were removed from water depths ranging from 3 m (10 ft) to 23.5 m (86 ft) from mud and mixed sand/mud substrate.

Port Gardner

A total of 140 derelict crab pots were removed or disabled in Port Gardner during the project including 48 (34%) commercial and 92 (66%) recreational pots (Table 1). Twenty-one (15%) pots were actively fishing and 119 (85%) were disabled. A total of 105 (75%) pots were determined to be equipped with proper escape cord (rot cord), 10 (7%) were not equipped with proper escape cord and on 25 (18%) the use of escape cord could not be determined. Of the 21 actively fishing pots removed, 10 (48%) were not equipped with escape cord and 11 (52%) did have escape cord. Of the 119 disabled derelict pots removed, 94 (79%) were equipped with escape cord, none were found without escape cord and on 25 (21%) of the pots escape cord use could not be determined due to the condition of the pot.

A total of 135 crabs were found in the 140 derelict pots removed from Port Gardner. Dungeness crab (*Cancer magister*) totaled 114 crab of which 11 (10%) were dead and 103 (90%) were alive. Twenty-one red rock crab (*Cancer productus*) were recovered with one (5%) dead and 20 (95%) alive (Table 1). Actively fishing pots contained 38 (33%) Dungeness crab, including 1 dead and 13 live crab. Derelict pots no longer actively fishing contained 76 (67%) Dungeness crab including eight dead and 68 live crab.

Skagit County

A total of 342 derelict crab pots were removed or disabled in Skagit County during the project including 240 (70%) commercial and 102 (30%) recreational pots (Table 2). A total of 110 (32%) pots were actively fishing and 232 (68%) were disabled. A total of 169 (49%) pots were determined to be equipped with proper escape cord (rot cord), 103 (30%) were not equipped with proper escape cord and on 70 (20%) the use of escape cord could not be determined. Of the 110 actively fishing pots removed, 87 (79%) were not equipped with escape cord and 23 (21%) did have escape cord. Of the 232 disabled derelict pots removed, 146 (63%) were equipped with escape cord, 16 (7%) had not been equipped with proper escape cord but the pot was otherwise disabled and on 70 (30%) escape cord use could not be determined due to the condition of the pots.

A total of 465 crabs were found in the 342 derelict pots removed from Skagit County. Dungeness crab totaled 365 crab of which 38 (10%) were dead and 327 (90%) were alive. One-hundred red rock crab were recovered with seven (7%) dead and 93 (93%) alive (Table 2). Actively fishing pots, contained 315 (86%) Dungeness crab including 32 dead and 283 live crab. Derelict pots no longer actively fishing contained 70 (19%) Dungeness crab including six dead and 44 live crab.

Port Gardner and Skagit County Combined

Of the 482 derelict pots removed, 288 (60%) were commercial pots and 194 (40%) were sport pots (Table 3). One hundred and thirty-one (27%) pots were determined to be still actively fishing and 351 (73%) were no longer fishing. Of the 482 pots removed, 95 (23%) were not equipped with legal escape cord, 274 (57%) had legal escape cord and 95 (20%) pots were too deteriorated to determine whether escape cord was used or not. Of the 274 pots equipped with legal escape cord, the escape cord had disintegrated on 258 (94%) and was still intact on 16 (6%) pots.

Of the 288 commercial pots recovered, 75 (26%) were not equipped with proper escape cord, 159 (55%) were equipped with escape cord and on 54 (19%) escape cord use could not be determined. Thirty-eight (13%) of the 194 sport derelict pots were not equipped with legal escape cord, 115 (59%) did have legal escape cord and on 41 (21%) sport pots escape cord use could not be determined. Of the 131 crab pots found to still be fishing, 97 (74%) were not equipped with proper escape cord and 34 (26%) had legal escape cord that had either yet to deteriorate (18 pots), or were still fishing even after the escape cord had disintegrated (16 pots) due to the pot lid being stuck closed.

Of the 482 derelict pots recovered, 140 (29%) pots contained a total of 479 Dungeness crab and 121 red rock crab (Table 3). Of the 479 Dungeness crab recovered, 430 (90%)

were live and 49 (10%) were dead. Sixty-four (13%) of the Dungeness crab recovered were females (50 live and 14 dead), 309 (65%) were males (296 live and 13 dead), and the sex was not determined for 106 (22%) of the Dungeness crab due to either poor shell condition or the crab was observed in the pot by divers but was lost during pot recovery. One hundred and thirteen (93%) of the 121 red rock crab recovered were live (56 females, 17 males, 40 sex unknown). Derelict pots determined to be still actively fishing contained 353 Dungeness crab (318 live and 35 dead), and 74 red rock crab (69 live and 5 dead). Pots determined to be no longer actively fishing contained 126 Dungeness crab (112 live and 14 dead), and 47 red rock crab (44 live and 3 dead). Crab pots without legal escape cord contained 320 (67%) Dungeness crab (291 live and 29 dead), and 65 (54%) of the red rock crab recovered. Crab pots with legal escape cord contained 158 (33%) Dungeness crab (138 live and 20 dead), and 54 (45%) of the red rock crab recovered.

Other animals found in the crab pots removed or disabled included eight live sunflower stars (*Pycnopodia helianthoides*) and four live rose stars (*Crossaster papposus*).

Twenty-eight crab pots recovered were returned to owners. Pots not returned to owners, along with crab rings and other fishing gear that were removed from Port Gardner were disposed of at the Snohomish County solid waste facility, where the total weight of gear disposed was approximately 2,450 lbs. Unreturned derelict gear items from Skagit County waters were taken to the Skagit River Steel recycling facility, where the total weight of the derelict gear and marine debris was approximately 6,000 lbs.

Conclusions

This project successfully removed the majority 461 (55%) of the 836 derelict fishing gear targets within diver depth range found during the sidescan sonar surveys, along with 28 others that were not identified in the surveys. The data shows a large difference in the characteristics of the recovered derelict crab pots between Port Gardner and Skagit County. These differences were most apparent in the percentage of commercial and sport pots, use of proper escape cord, and the fishing condition of the pots (Figure 4).

In the 2009 Port Gardner surveys, 134 sidescan targets went uninvestigated during removal operations because they were detected in depths beyond diver capabilities (> 105 ft). Surveys conducted during the 2011 operations paid special attention to not re-surveying at these depths in order to minimize unattainable targets. Crab pot removal in Skagit County focused on targets detected in water 60 feet and shallower, based on WDFW request, with the assumption that derelict pots in relatively shallower waters have a larger impact on the Dungeness crab resource. Although a comparative analysis of crabs in pots at depth is not provided here, the number of Dungeness crabs found in the Skagit County pot removal proved that derelict pots in shallower water account for a significant impact to the resource.

Recommendations

Based on the observations and results of the derelict gear removal project, the following are recommendations to further reduce the impacts of derelict fishing gear on the marine environment.

- **The use of legal escape cord on crab pots should continue to be enforced. Escape cord education programs should continue in Snohomish County and become offered in Skagit County, as well as other counties throughout the Puget Sound.**

- **The study area should be surveyed and gear removed annually for the next two to three years to determine crab pot loss rates and measure the effectiveness of crab pot fishing education programs being conducted by the Snohomish County MRC.**

Acknowledgements

The Port of Everett kindly provided free moorage for the dive support vessel during the Port Gardner portion of the project and allowed storage of a waste container at the 11th Street public boat ramp. Their assistance is greatly appreciated. Tulalip Tribal marine enforcement personnel assisted the dive support vessel and retrieved the Tulalip Tribal pots that were returned to owners. Their assistance is also greatly appreciated. We also wish to thank the numerous MRC members and other guests that helped the crew of the gear recovery vessel during the project. We also wish to thank the Snohomish County MRC for their cooperation during the project. Don Velasquez and others from WDFW provided valuable insight to the planning of the surveys and removals.

Table 1. Number of derelict pots recovered, type of pot (commercial or sport), fishing status (actively fishing or not), rot cord use and numbers of live and dead organisms observed in Port Gardner during the Port Gardner and Skagit County 2011 derelict fishing gear project. Source: NRC.

Fishing/Not Fishing	Actively Fishing			Not Fishing				All Pots			
	Rot Cord	No Rot Cord	Total	Rot Cord	No Rot Cord	Unknown	Total	Rot Cord	No Rot Cord	Unknown	Total
Commercial											
# Pots Recovered	1	7	8	33	0	7	40	34	7	7	48
# Dungeness Crab Dead	0	2	2	6	0	0	6	6	2	0	8
# Dungeness Crab Alive	2	20	22	21	0	0	21	23	20	0	43
# Red Rock Crab Dead	0	1	1	0	0	0	0	0	1	0	1
# Red Rock Crab Alive	0	0	0	3	0	0	3	3	0	0	3
# Total Crab Dead	0	3	3	6	0	0	6	6	3	0	9
# Total Crab Alive	2	20	22	24	0	0	24	26	20	0	46
Sport											
# Pots Recovered	10	3	13	61	0	18	79	71	3	18	92
# Dungeness Crab Dead	1	0	1	2	0	0	2	3	0	0	3
# Dungeness Crab Alive	12	1	13	47	0	0	47	59	1	0	60
# Red Rock Crab Dead	0	0	0	0	0	0	0	0	0	0	0
# Red Rock Crab Alive	0	0	0	16	0	1	17	16	0	1	17
# Total Crab Dead	1	0	1	2	0	0	2	3	0	0	3
# Total Crab Alive	12	1	13	63	0	1	64	75	1	1	77
All Pots											
# Pots Recovered	11	10	21	94	0	25	119	105	10	25	140
# Dungeness Crab Dead	1	2	3	8	0	0	8	9	2	0	11
# Dungeness Crab Alive	14	21	35	68	0	0	68	82	21	0	103
# Red Rock Crab Dead	0	1	1	0	0	0	0	0	1	0	1
# Red Rock Crab Alive	0	0	0	19	0	1	20	19	0	1	20
# Total Crab Dead	1	3	4	8	0	0	8	9	3	0	12
# Total Crab Alive	14	21	35	87	0	1	88	101	21	1	123
# Total Crab	15	24	39	95	0	1	96	110	24	1	135

Table 2. Number of derelict pots recovered, type of pot (commercial or sport), fishing status (actively fishing or not), rot cord use and numbers of live and dead organisms observed in Skagit County during the Port Gardner and Skagit County 2011 derelict fishing gear project. Source: NRC.

Fishing/Not Fishing	Actively Fishing			Not Fishing				All Pots			
	Rot Cord	No Rot Cord	Total	Rot Cord	No Rot Cord	Unknown	Total	Rot Cord	No Rot Cord	Unknown	Total
Commercial											
# Pots Recovered	15	55	70	110	13	47	170	125	68	47	240
# Dungeness Crab Dead	5	26	31	5	0	0	5	10	26	0	36
# Dungeness Crab Alive	14	250	264	25	2	1	28	39	252	1	292
# Red Rock Crab Dead	2	2	4	2	0	1	3	4	2	1	7
# Red Rock Crab Alive	5	42	47	18	0	0	18	23	42	0	65
# Total Crab Dead	7	28	35	7	0	1	8	14	28	1	43
# Total Crab Alive	19	292	311	43	2	1	46	62	294	1	357
Sport											
# Pots Recovered	8	32	40	36	3	23	62	44	35	23	102
# Dungeness Crab Dead	0	1	1	1	0	0	1	1	1	0	2
# Dungeness Crab Alive	1	18	19	16	0	0	16	17	18	0	35
# Red Rock Crab Dead	0	0	0	0	0	0	0	0	0	0	0
# Red Rock Crab Alive	2	20	22	6	0	0	6	8	20	0	28
# Total Crab Dead	0	1	1	1	0	0	1	1	1	0	2
# Total Crab Alive	3	38	41	22	0	0	22	25	38	0	63
All Pots											
# Pots Recovered	23	87	110	146	16	70	232	169	103	70	342
# Dungeness Crab Dead	5	27	32	6	0	0	6	11	27	0	38
# Dungeness Crab Alive	15	268	283	41	2	1	44	56	270	1	327
# Red Rock Crab Dead	2	2	4	2	0	1	3	4	2	1	7
# Red Rock Crab Alive	7	62	69	24	0	0	24	31	62	0	93
# Total Crab Dead	7	29	36	8	0	1	9	15	29	1	45
# Total Crab Alive	22	330	352	65	2	1	68	87	332	1	420
# Total Crab	29	359	388	73	2	2	77	102	361	2	465

Table 3. Number of derelict pots recovered, type of pot (commercial or sport), fishing status (actively fishing or not), rot cord use and numbers of live and dead organisms observed in total during the Port Gardner and Skagit County 2011 derelict fishing gear project. Source: NRC.

Fishing/Not Fishing	Actively Fishing			Not Fishing				All Pots			
	Rot Cord	No Rot Cord	Total	Rot Cord	No Rot Cord	Unknown	Total	Rot Cord	No Rot Cord	Unknown	Total
Commercial											
# Pots Recovered	16	62	78	143	13	54	210	159	75	54	288
# Dungeness Crab Dead	5	28	33	11	0	0	11	16	28	0	44
# Dungeness Crab Alive	16	270	286	46	2	1	49	62	272	1	335
# Red Rock Crab Dead	2	3	5	2	0	1	3	4	3	1	8
# Red Rock Crab Alive	5	42	47	21	0	0	21	26	42	0	68
# Total Crab Dead	7	31	38	13	0	1	14	20	31	1	52
# Total Crab Alive	21	312	333	67	2	1	70	88	314	1	403
Sport											
# Pots Recovered	18	35	53	97	3	41	141	115	38	41	194
# Dungeness Crab Dead	1	1	2	3	0	0	3	4	1	0	5
# Dungeness Crab Alive	13	19	32	63	0	0	63	76	19	0	95
# Red Rock Crab Dead	0	0	0	0	0	0	0	0	0	0	0
# Red Rock Crab Alive	2	20	22	22	0	1	23	24	20	1	45
# Total Crab Dead	1	1	2	3	0	0	3	4	1	0	5
# Total Crab Alive	15	39	54	85	0	1	86	100	39	1	140
All Pots											
# Pots Recovered	34	97	131	240	16	95	351	274	113	95	482
# Dungeness Crab Dead	6	29	35	14	0	0	14	20	29	0	49
# Dungeness Crab Alive	29	289	318	109	2	1	112	138	291	1	430
# Red Rock Crab Dead	2	3	5	2	0	1	3	4	3	1	8
# Red Rock Crab Alive	7	62	69	43	0	1	44	50	62	1	113
# Total Crab Dead	8	32	40	16	0	1	17	24	32	1	57
# Total Crab Alive	36	351	387	152	2	2	156	188	353	2	543
# Total Crab	44	383	427	168	2	3	173	212	385	3	600

Figure 1. Location of derelict crab pot targets found in Port Gardner and Skagit County during the Port Gardner and Skagit County 2011 derelict fishing gear project. Source: Fenn Enterprises and NRC, Inc.

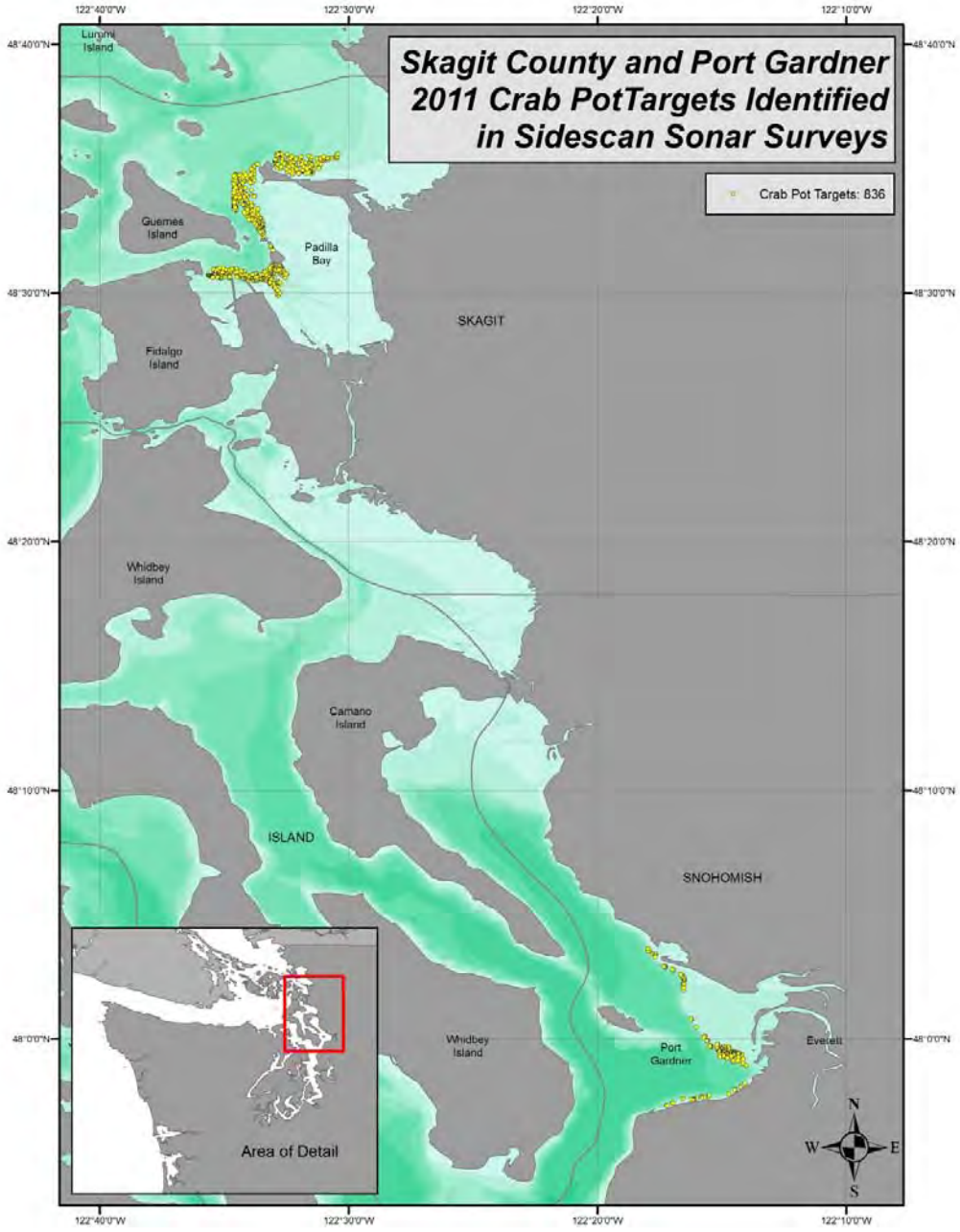

Figure 2. Location of sidescan sonar survey effort and derelict crab pot targets disposition in Port Gardner following derelict crab pot removal during the Port Gardner and Skagit County 2011 derelict fishing gear project. Source: Fenn Enterprises and NRC, Inc.

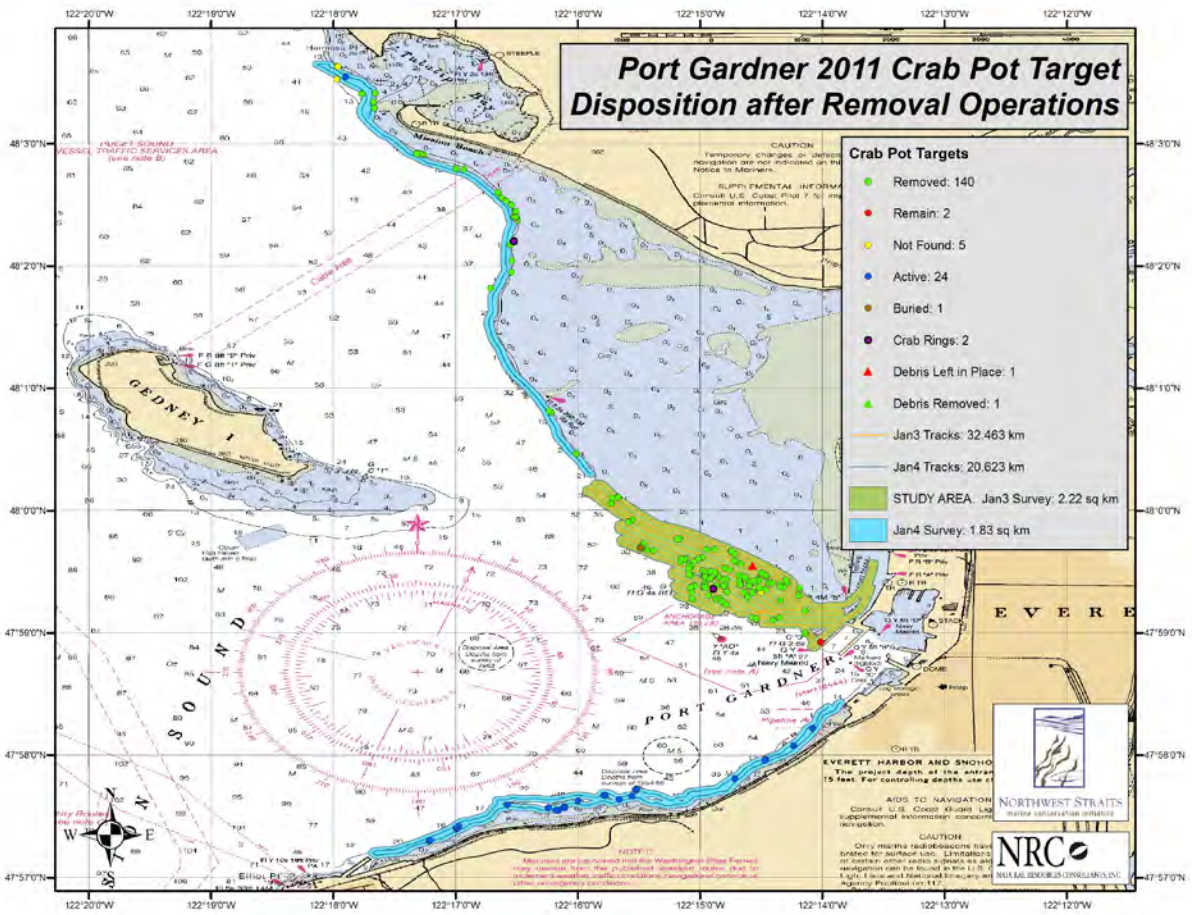

Figure 3. Location of sidescan sonar survey effort and derelict crab pot targets disposition in Skagit County following derelict crab pot removal during the Port Gardner and Skagit County 2011 derelict fishing gear project. Source: Fenn Enterprises and NRC, Inc.

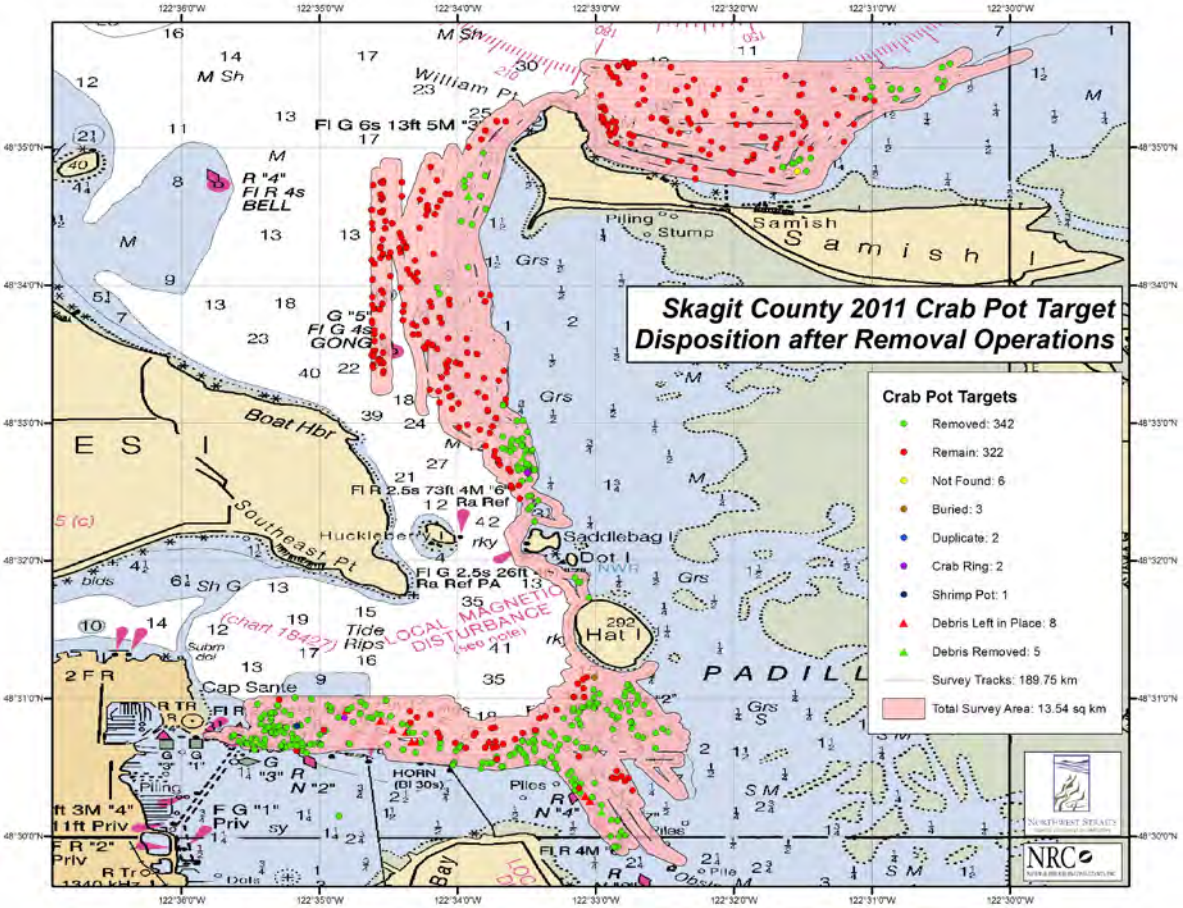

Figure 4. Comparison of recovered derelict crab pot characteristics from Port Gardner and Skagit County 2011 derelict fishing gear project. Source: NRC, Inc.