Report on Removing Marine Debris from Beaches on St. Paul Island, Alaska in 2013

By



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For



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INTRODUCTION

The Aleut Community of St. Paul Island (ACSPI) has been cleaning up marine debris on the beaches and shorelines of St. Paul Island, Alaska since 1998. The Alaska Marine Stewardship Foundation (AMSF), formerly known as the Marine Conservation Alliance Foundation, began providing funding to the ACSPI for marine debris cleanup efforts starting in 2005, but the AMSF has been participating in the cleanup efforts on the island since 2003. The ACSPI is well equipped to perform marine debris cleanup operations. Annually, the ACSPI removes around 15,000 to 20,000 pounds of marine debris from St. Paul's shorelines.

St. Paul Island is the largest of the Pribilof Islands, a five-island archipelago in the central Bering Sea (Figure 1). St. Paul Island is 44 square miles with a surface area of approximately 27,000 acres, and is surrounded by 42 miles of shoreline. The village is concentrated in the City of St. Paul at the island's southern peninsula.



Figure 1. Map showing the location of St. Paul Island, Alaska.

St. Paul Island supports astonishingly high concentrations of marine mammals, seabirds, fish, and invertebrates. On the Pribilof Islands, one of the most prominent local impacts of marine debris is the entanglement of northern fur seals (*Callorhinus ursinus*) or laqux (fur seal in Aleut)

in pieces of net, plastic bands, and other synthetic debris. Unangan (Aleuts) of the Pribilof Islands are working in collaboration with partners in the fishing industry, management agencies, and the environmental community to mitigate the damaging effects of marine debris. In recent years, members of the ACSPI have removed marine debris from the environment, and captured and released entangled northern fur seals. Background information on marine debris removal and long-term monitoring on St. Paul Island can be found in the 2010 final report to AMSF (Zavadil and Lestenkof 2010).

In spring of 2013, the AMSF solicited proposals for removal and documentation of debris from ocean beaches throughout Alaska. The ACSPI prepared and submitted a proposal for cleaning beach segments on St. Paul Island, with matching funds from the Central Bering Sea Fishermen's Association. The project was selected and a contract was executed in May of 2013 with funds from the U.S. Fish and Wildlife Service, U.S. Department of Interior and the Department of Commerce, Community, and Economic Development, Division of Community and Regional Affairs under the Coastal Impact Assistance grant (F12AF70202, CFDA 15.668) awarded to the AMSF. This report describes the work and the results of that project.

CLEANUP METHODS

For this project, marine debris program protocols for cleanup and data collection, sorting, fish net samples, disposal, and reporting were all completed in accordance with the Alaska Marine Debris Cleanup Handbook 2013 (MCA Foundation 2013).

Marine Debris Cleanup and Data Collection

Local knowledge was used to select the shorelines to be cleaned based on shorelines that are important habitat for marine mammals and birds, and known to not have been cleaned of marine debris in the past. Once the ACSPI received a cleanup contract a job announcement for 15 adult positions and eight youth positions was posted for a two-week period. ACSPI staff reviewed the applications and selected a cleanup crew. Prior to the start of the cleanup workers were briefed on safety policies as well as land status and wildlife issues specific to the cleanup areas. Tailgate safety briefings were also conducted daily prior to the start of each day's cleanup activities. Small pieces of debris were collected and put into small yellow plastic ALPAR bags. Larger pieces of debris (line, net, buoys, etc.) were moved to an area for a crew with a Yamaha Rhino or ATV with a trailer to pick up. At the end of each day the debris was moved from the cleanup site to a staging area in the St. Paul harbor. At the end of the seven-day cleanup the debris was sorted into the AMSF marine debris sorting categories and then placed into three cubic vard super sacks. All marine debris collected was sorted, categorized, weighed, and recorded on the AMSF Marine Debris Cleanup Data Collection Form (Form 2). The weight of the debris was determined by using a Sherline suspended hydraulic scale with a 5,000 lb capacity. The debris collected from the cleanup sites were separated by debris sorting categories identified on AMSF Form 2, then placed in super sacks and weighed with the scale attached to the end of the forks on a Bobcat forklift. All debris was weighed in the harbor staging area during a period of two days with a smaller cleanup crew.

Fish Net Samples

Samples of any nets found were collected in accordance with AMSF's Fishing Net Samples collection protocol found in the Alaska Marine Debris Cleanup Handbook 2013 (MCA Foundation 2013).

Recycling and Disposal

Super sacks of collected debris were staged in the St. Paul harbor area until future shipment off island. The goal is to ship all the debris off island for recycling and/or landfilling.

CLEANUP RESULTS

Marine Debris Cleanup and Data Collection

Marine debris removal efforts on St. Paul Island began on May 21, 2013 and continued through May 30, 2013 (with no cleanup on May 27th), for a total of seven days. Marine debris was removed from a total of approximately 11,410 yards of shoreline. The entire length of English Bay was cleaned (except Little Zapadni Rookery), from Tolstoi Rookery beginning at Tolstoi Point and ending at Big Zapadni Rookery (10,560 yards). Lukanin Catchall (250 yards), and Northeast Point (Morjovi Rookery and Irish Rookery) (600 yards) were also cleaned (Figure 2 and Table 1). Seventeen paid adults and eight paid youth expended 1310 hours to collect 19,448 pounds of marine debris.



Figure 2. Map showing the marine debris cleanup locations on St. Paul Island, Alaska.

The total weight of marine debris removed from English Bay was 10,914 pounds. Lines, buoys, and net were the major contributors to the weight of marine debris collected from this area. The total weight of marine debris removed from Lukanin Catchall was 1,609 pounds. Lines were the major contributor to the weight of marine debris collected from this area. The total weight of marine debris removed from Northeast Point rookeries (Morjovi and Irish) was 6,925 pounds. Lines and net were the major contributors to the weight of marine debris collected from these rookeries (Table 2). Nine paid adults and four paid youth expended 197 hours to sort and weight debris collected on MCAF Form 2.

Fish Net Samples

A total of 15 fish net samples were collected during the cleanup. Samples were marked with the collection month and year, tagged, and mailed to AMSF.

Recycling and Disposal

A total of 13 super sacks (approximately 2,500 lbs) of plastic marine debris (banding, plastic beverage bottles, all other plastic, non-beverage, and plastic floats) were shipped from St. Paul Island to Seattle, WA via Coastal Transportation in November 2013 and trucked from Seattle to Vancouver, BC. The Plastic Bank teamed up with the Plastics For Change program and agreed to accept all the sorted plastic to use in their recycling program. The remainder of the debris is still staged in the harbor area for future shipment off-island. Roosevelt Landfill in Washington was contacted in October 2013 to discuss the possibility of landfilling the debris, but to date there has been no response from them.

I able I - Da	te, beach s	egment, stai	rt and end c	coordina	tes, beach	length an	d width, a	nd area clea	ined on St. Pau	li island,	Alaska II	n 2015.	
Date Surveyed	Beach St Nan	egment ne	Start Point c Beach (Lat)	f Sta Bei	urt Point of ach (Long)	End] Beac	Point of th (Lat)	End Point Beach (Loi	of Length 1g) Beach (ı of yds)	Average V of Beach (Vidth A (yds)	rea Cleaned (sq yds)
5/21/13	English Ba	ıy	N 57°09.163	. M	170°20.118	N 57	°08.289'	W 170º17.2	345' 10,56	0	100		1,056,000
5/28/13	Lukanin C	atchall	N 57°08.093	M is	170°15.781	N 57	'899.70°	W 170°15.7	786' 250		100		25,000
5/29/13	Northeast l	Point N	V 57º14.543'	W 1	70°06.148'	N 57°C	7.585'	W 170°16.4	14' 600		100		60,000
	Total								11,41	0			1,141,000
Table 2 – W	eight in po	unds of mar	rine debris 1	emoved	by compe	sition cat	tegory fro	m three area	is on St. Paul I:	sland, A	laska in 2	013.	
			High			Other		Plastic	Other Plastic,			Other Non-	Total
Beach Segment	Net	Domestic Gill Net	Seas Driftnet	Line	Buoys	Fishing Related	Banding	Beverage Bottles	Non- Beverage	Foam	Metal	Fishing Related	Weight (Ibs)
English Bay	1,929	0	0	5,959	2,003	0	2	53	663	0	305	0	10,914
Lukanin Catchall	147		0	1,129	0	0	7	0	124	0	207	0	1,609
Northeast Point	1,506	0	0	3,921	428	0	5	49	653	0	102	261	6,925
Total Weigh (lbs)	t 3,582	0	0	11,009	2,431	0	6	102	1,440	0	614	261	19,448
Table 3 - Per	centage of	marine deb	ris remove	d by tota	J weight b	y compos	sition cate	gory on St.	Paul Island, Al	laska in j	2013.		
			1.11									Other	
Beach		Domestic	High Seas			Utner Fishing		Plasuc Beverage	Uther Plastic, Non-			Non- Fishing	Total
Segment	Net	Gill Net	Driftnet	Line	Buoys	Related	Banding	Bottles	Beverage	Foam	Metal	Related	Percent (%)
English Bay	18%	0%0	0%0	55%	18%	0%0	%0	0%0	6%	%0	3%	0%0	100%
Lukanin Catchall	9%6	%0	%0	%02	%0	0%0	0%0	%0	8%	%0	13%	%0	100%
Northeast Point	22%	%0	%0	57%	6%	0%0	%0	1%	9%	%0	1%	4%	100%
Total Percen (%)	t 18%	%0	0%0	57%	13%	0%0	0%0	1%	7%	0%0	3%	1%	100%

DISCUSSION

Marine Debris Cleanup and Data Collection

The marine debris cleanup on St. Paul Island was successful despite the significantly reduced budget for 2013. Overall the most prevalent type of debris by weight was lines, net, buoys, and other plastic (non-beverage). Debris accumulation appears to be ongoing at English Bay, Lukanin, and Northeast Point. In English Bay debris was mostly found along Big Zapadni Rookery above the high tide line and along Zapadni Reef Rookery. Large pieces of net and line were mostly embedded in the rocks. Ice and northern fur seals were present at Little Zapadni Rookery making cleaning the shoreline impossible. Not much debris was found along the sandy beaches of English Bay and Tolstoi Rookery. The cleanup crew moved fast through these areas and finished cleaning English Bay in four days, but there was funding for seven days of cleanup. The captains of the cleanup crew scouted other rookeries to clean and this is how Lukanin Catchall and Northeast Point (Morjovi Rookery and Irish Rookery) were selected. At Northeast Point, most of the debris was collected along Irish Rookery in a cove-like area. Irish Rookery has never been cleaned of marine debris before. This area had a lot of buried net and line above the high tide line, embedded in rock and grass.

This year the process of picking up marine debris and staging it for sorting and categorizing at the end of the cleanup worked better than trying to sort debris into the yellow plastic ALPAR bags while picking debris off the beach, or sorting at the end of each day. ALPAR bags of debris and larger pieces of debris were placed in piles along the shoreline for the Yamaha Rhino or ATV with a trailer to pick up. The Rhino and ATV crews transported the collected debris to a temporary staging area near the cleanup location. At the end of each day the cleanup crew placed all the debris into the pickup trucks and brought the debris back to town to a staging area in the harbor. At the end of the cleanup a smaller crew sorted all the debris according to the categories on MCAF Form 2 and placed the debris into super sacks. Super sacks were labeled, weighed, and placed on pallets in the harbor area for future shipping off island. Debris was weighed either in ALPAR bags or super sacks using a scale suspended from the forks of a forklift.

Cleanup of northern fur seal rookeries need to occur in early May, but also after shorelines are free of snow and ice. Every year there is a short window between funding availability and the arrival of fur seals. Despite the fur seal encounters this year, the cleanup crew was successful in targeting areas of high accumulation and importance to wildlife.

Fish Net Samples

The cleanup crew captains overlooked recording the beach designations of the net samples that were collected. This shouldn't affect any analysis as all the nets that were collected are found on all shorelines of the island.

Recycling and Disposal

The staging of marine debris in the harbor area proved to save valuable time when it came time to ship some of it off island. The rest of the non-plastic debris is still staged in the harbor area for future shipment off island.

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REFERENCES

MCA Foundation. 2013. Alaska Marine Debris Cleanup Handbook. Juneau, Alaska.

Zavadil, P.A. and P.M. Lestenkof. 2010. Removing Marine Debris from Beaches and Long-Term Monitoring of Marine Debris on St. Paul Island, Alaska in 2010.

APPENDICES/ATTACHMENTS

Photos from Big Zapadni Rookery in English Bay.









Photos from Tolstoi Rookery in English Bay.









Photo of English Bay Beach.



Photos of Zapadni Reef Rookery in English Bay.









Photos from Lukanin Catchall.





Photo from Morjovi Rookery at Northeast Point.



Photo from Irish Rookery at Northeast Point.



Photos of the staging area near the St. Paul Harbor.





