Report on Removing Marine Debris from Beaches near Kodiak, Alaska in 2010

By

Island Trails Network
February, 2011

For

Marine Conservation Alliance Foundation
431 N Franklin St Suite 305
Juneau, Alaska 99801

Introduction

2010 marked the completion of our third year of contractual marine debris clean-up work for the Marine Conservation Alliance Foundation. This narrative is intended to provide a brief overview of clean-ups that occurred in 2010 as well as an overview of the debris removal, sorting, reporting, containerizing and shipping of the debris that occurred this winter--a series of tasks which must occur independently of the actual field work for logistical reasons explained below.

ITN's growth in 2010 enabled us to accomplish more trail work and field more trail crews, with an emphasis on the three-week service learning model for high school students. Although our marine debris effort has been somewhat consistent over the last 3 years in terms of funding levels and tonnage produced, our "terra" trail work dramatically expanded in 2010 causing our operating budget to quadruple last year, and our growth continues. We see this as the rest of our mission areas growing to achieve parity with our marine debris mission. As an organization, we're comfortable with the current balance between trails and coastal stewardship and hope to keep this balance into the future.

Our staff has grown beyond just the Executive Director to include four crew leaders to provide more supervisory and safety oversight to our field operations. These individuals supervised crews of 6-12 high-school-aged students from June 1st through August 15th.

Cleanup

Our intention was to conduct five clean-ups at five different locations including Long Island, Shuyak Island, Spruce Island, Tugidak Island, and Karluk Spit. Due to logistical challenges, the Karluk spit clean-up was deferred and the Spruce Island clean-up was shortened by several days. The following is a brief overview of the other locations:

Long Island: On May 8, 2010 Boy Scout troop 626 comprised of 12 scouts aged 13-17 and six parents conducted a one-day marine debris cleanup on Long Island, about 5 miles from Kodiak city. The uninhabited 3-mile-long island serves as a barrier to Kodiak harbor, knocking down easterly swells and capturing much of the debris that would otherwise land at Kodiak. This was the third consecutive year these beaches have been surveyed and cleaned, serving as a valuable monitoring site for marine debris accumulation over time. All of the 1555 lbs of marine debris removed from Cook Lagoon and Deer Point beaches had been deposited there in the last twelve months, indicating another year of a high rate of accumulation. Removal of the marine debris occurred in August, 2010 by a chartered vessel. This is a cost-effective, productive clean-up that the local scouts have come to look forward to each year, as well as a useful monitoring site. We hope to continue work here in 2011.

Shuyak: The northernmost island in the archipelago, Shuyak State Park is known for rocky irregular shorelines, deep inlets, large tidal ranges and strong currents. At 60 NM from Kodiak city, it takes a full day for a boat big enough to haul our crew to get there, and a full day back. The beaches at Shuyak are difficult for landing and poorly charted, and the few sheltered

anchorages on the northern end of the island must be approached at high tide. State Park facilities are insufficient to berth our crew and camping permits are not authorized.

Despite all this, Shuyak is a productive place to stage a clean-up with numerous catchment areas and a "sticky" shoreline that snags trawl nets and other flotsam drifting by. It also has a high recreational value, making it a destination for our volunteers and allowing for consistently high participation rates.

For the past three years we have invested in a vessel to serve multiple needs of human transportation, marine debris transportation, ship-to-shore ferrying and berthing needs on Shuyak Island and believe this is the most efficient method of operating on Shuyak Island. Mobility is also a concern--our experience has shown that re-accumulation rates, even on known beaches, often cannot be predicted from year to year. Even park staff can only visit these beaches a few times each summer. Thus, the ability to haul anchor instead of moving an entire camp saves us valuable time and volunteer resources and allow us to follow the "big catch".

CGPS students, ITN staff and Alaska State Park Rangers stand behind their mission, Shuyak Island Alaska.

This year's clean-up was once again crewed by students from the Columbia Preparatory & Grammar School (CGPS). The weather was marked by periods of heavy rain, but the crew persisted to collect 5313 lbs of marine debris from Dead Bird beach and a section of coastline just southwest of Carshan Point, one of the most remote and exposed sections of the park. Instead of super-sacking all the debris, most items were simply bagged in ALPAR bags, making them easier to pass over the rail of a skiff and through a hatch into one of the MV Island C's holds. This also facilitated the offload process, which was done entirely by hand.

In years past we had been donated a crane to offload the bags from the vessel, but this year the cannery was too busy to receive us on the day of our offload. Instead we tied up at a city-owned pier and with the help of our crew of twelve and a donated forklift (City of Kodiak) and truck (Andy Schroeder) we completed the offload by making several trips from the city pier to the staging area about 1 mile away.

The Shuyak was featured in an ITN video short on YouTube and at this blog site.

Tugidak: An 11-mile stretch of beach on the northeast shore of Tugidak remains the single largest collection marine debris in the Kodiak archipelago. But with the remoteness of Tugidak, lack of anchorages & beach approaches, and miles of wetlands just inshore of the beach it also remains the most logistically challenging.

In 2009 we conducted a clean-up on Tugidak with a crew of eight individuals, but were hammered by driving 35-50 mph winds for 4 of the 5 days and collected only about half of our goal of 8000 lbs. That haul was also stranded on a section of beach 5 miles from the nearest landing-craft approach. This year our objective was to take a smaller crew down there with a primary objective of getting the 2009 haul to "Pick-up Point" and a secondary objective of collecting more marine debris.

Andy Schroeder (ITN) and Justin Smith (ADF&G) load a trailer with marine debris, Tugidak Island, Alaska.

Our crew consisted of the Executive Director, one crew leader, one crew member and two ADF&G personnel involved with the harbor seal research program on Tugidak Island. With access to the agency's ATVs and trailers, we had a relatively easy time transporting the debris up and down the beach a few hundred pounds at a time. Fair weather permitted long workdays and allowed us to collect and stage an additional 4120 lbs of debris.

Removal of marine debris from Tugidak was done by MV Lazy Bay, who picked it up on November 22nd and delivered to Kodiak November 24th. Without a seasonal crew available to assist with the offload we hired a dump truck to transport the debris to the staging area over three trips.

Spruce Island: From previous over flights and skiff visits to the island, we have long suspected that the eastern shores Spruce Island are a catchment area for marine debris. This was our first year working over there. This is an area of high habitat value. The kelp beds off East cape are home to harbor seals, sea otters, and seabirds and aquatic ducks. Much of the debris is has entered the forest where it is difficult to extract and could potentially impact otters, beaver, and Sitka blackmail deer. The area also has high cultural value. Monk's Lagoon is the original burial site of the St. Herman of Russian Orthodox fame, where hundreds of faithful make a pilgrimage from all over the world to visit St. Herman's original grave and drink from the spring he used.

Spruce Island is about 10 miles from Kodiak city and easily accessible by skiff in good weather. It is almost entirely owned by the Ouzinkie Native Corporation. ITN is establishing a months-long presence on Spruce Island during the summers of 2011 and 2012 for a large scale trail improvement project. Part of our objective there this year was to locate and establish a working camp as a platform for future efforts in both trails and coastal clean-ups. The camp we found was superbly situated with outhouses, platforms for weather ports, storage sheds and banyas but needed 2 days of repair to make it habitable, and it became a clean-up project of its own. A 1.3 mile trail to the clean-up beach also had to be cut and marked. When combined with a late start due to an overrun on another trail project, we were left with only one long day in the field at Monks' Lagoon on Spruce Island, during which we collected 2000 lbs and secured it for the winter. We plan to return there in 2011 to continue clean-up operations and remove what has been collected there. We did not invoice the MCAF for our time on Spruce Island.

Karluk Spit: This project has been deferred to 2011 or 2012 due to the need for increased coordination with the KNWR for use of the Karluk River and the Karluk Tribal Council on Karluk Spit. The clean-up did not occur as planned in 2010. The area is exposed to the Shelikof Strait and has received the highest rating possible (5) for areas impacted by marine debris. The work site is at the mouth of the Karluk river, which supports all five species of salmon and at the turn of the 20th century was the highest producing salmon run in the world. It is near the village of Karluk, with a population of 27. ITN will continue to engage the local native community to participate in this clean-up, and increase our efforts to cultivate the necessary partnerships in that village.

<u>Cleanup Results</u>

Once again we enjoyed four productive clean-ups that yielded significant tonnage of marine debris while educating dozens of volunteers about the impacts of the marine debris phenomenon. Our total haul for 2010 clean-ups was just under 12,988 lbs at a cost of $30,122, down from last year's 14,249 lbs at a cost of $40,117 (excluding Tugidak). We hope to continue making efficiency gains in the coming years, and to maintain capacity to grow our existing programs if funding becomes available.

Date	Location	Beach	Latitude	Longitude	Length of Beach (yds)	Width of Beach	Natural Accumulation Area?	Trawl Net Samples	HSDN Samples	Marine Mammals
May 8-9, 2010	Long Island	Cook Lagoon	57-46-26N	152-15-35W	300	50	Y	0	0	Seal, Sealion, Sea Otter
May 8, 2010	Long Island	Deer Pt.	57-46-29N	152-14-48W	100	30	Y	0		None
July 5, 2010	Shuyak Island	Dead Bird Beach	58-34-37N	152-37-56W	800	30	Y	0	1	Sea Otter, Seal, River Otter
July 6-9, 2010	Shuyak Island	Carshan Pt.	58-36-23N	152-28-54W	2400	30	Y	0		Sea Otter, Seal
August 23-27, 2010	Tugidak Island	Ancient Beach	56-28-35N	154-37-02N	16000	450	Y	0	0	Seal
October 6-10, 2008	Sitkinak Island	Whirlpool Pt.	56-36-31N	154-09-31W	9000	50	Y	0	0	Seal
October 6-10, 2009	Tugidak Island	Ancient Beach	56-28-35N	154-37-02W	1800	450	Y	0		Seal

Table 1. Date, location, lat/long, length/width of beach, natural accumulation area, trawl net samples, HSDN samples, and marine mammals.

Figure 1. Location of cleanup areas in 2010.

	Trawl Net	Crab Line	Domestic Gillnet	HSDN	Floats	Misc. Other lines	Other fishing related	Banding	Plastic Beverage Bottles	Plastic Non-beverage containers	Cans (all types)	Foam	Other non-vessel related	Total
Long Island - Cook Lagoon	191	191	0	0	48	29	0	0	143	143	19	96	96	955
Long Island - Deer Pt.	120	120	0	0	30	18	0	0	90	90	12	60	60	600
Shuyak Island - Dead Bird	240	180	0	24	60	36	0	0	180	180	24	180	96	1200
Shuyak Island - Carshan Pt.	823	617	0	82	206	123	0	0	617	617	82	617	329	4115
Tugidak Island - 2009	884	884	0	0	221	133	0	0	663	663	88	442	442	4420
Sitkinak Island	1592	1592	0	0	398	239	0	0	1194	1194	159	796	796	7960
Tugidak Island -2010	824	824	0	0	206	124	0	0	618	618	82	412	412	4120

Table 2. Weight of marine debris (in lbs) by location and type.

Table 3. Percentage of marine debris by location and type.

	Trawl Net	Crab Line	Domestic Gillnet	HSDN	Floats	Misc. Other lines	Other fishing related	Banding	Plastic Beverage Bottles	Plastic Non-beverage containers	Cans (all types)	Foam	Other non-vessel related
Long Island - Cook Lagoon	20	20			5	3			15	15	2	10	10
Long Island - Deer Pt.	20	20			5	3			15	15	2	10	10
Shuyak Island - Dead Bird	20	15		2	5	3			15	15	2	15	8
Shuyak Island - Carshan Pt.	20	15		2	5	3			15	15	2	15	8
Tugidak Island - 2009	20	20			5	3			15	15	2	10	10
Sitkinak Island	20	20			5	3			15	15	2	10	10
Tugidak Island -2010	20	20			5	3			15	15	2	10	10
Avg Percentage by Type	23	22	0	0.7	5.8	3.5	0	0	18	18	2.3	13	11

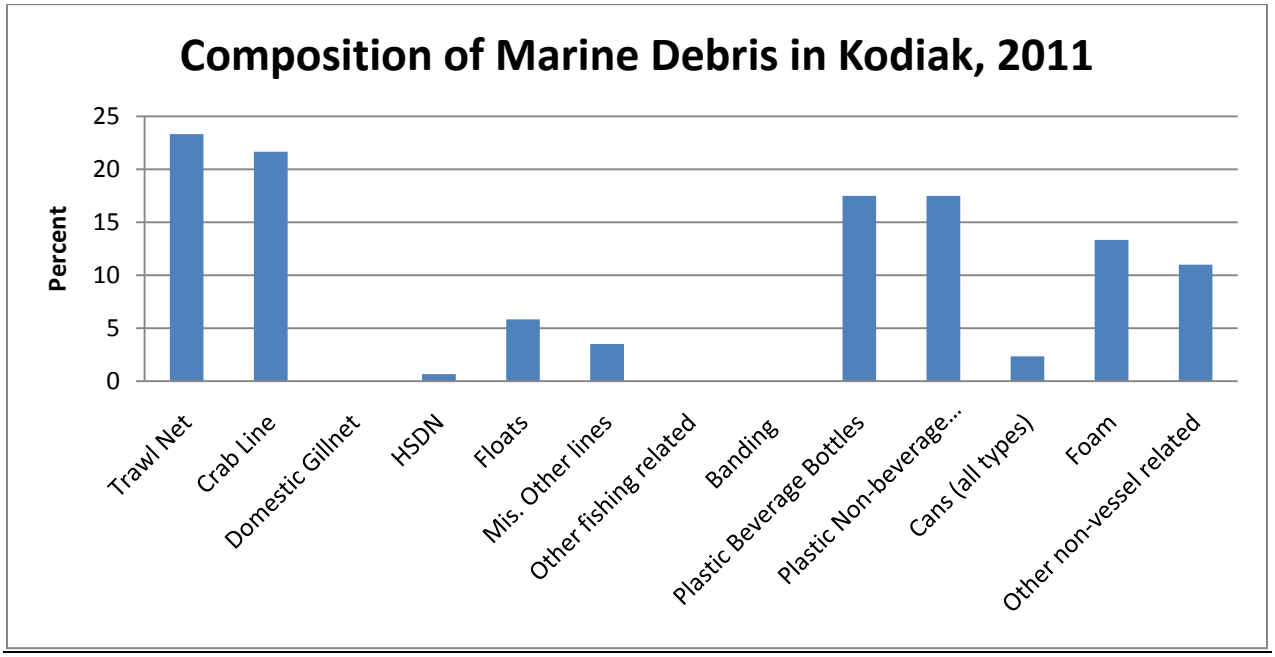

Table 4. Composition of marine debris weight by type.

Discussion

Logistics and cost-effectiveness of marine debris removal: Like the year before it, 2010 saw some of our clean-up hauls from 2009 overwintering on the beach (Tugidak). This has become commonplace both because ITN field crews work late into the fall, and because we can get the best shipping rates for debris removal if we wait until the chartered vessel is nearby with good weather--conditions that can take months or even a year to occur.

For instance, in October 2008 we secured 7960 lbs of marine debris at Sitkinak which sat securely on the beach for a year before being delivered to Kodiak in October 2009 (thereby missing the 2009 container shipment), where it sat another year before being containerized and shipped off-island in November, 2010. Operating on this multi-year timeframe increases effectiveness by allowing us to choose safe weather for landing, obtain the best shipping rates by splitting charter rates with others, and ensures full containers by shipping in large batches.

As of the close of 2010, we have approximately 2000 lbs of marine debris on Spruce Island ready to be picked up or supplemented by a 2011 clean-up in the same area.

Marine Debris sorting, shipping and recycling: Each of this year's deliveries were stored on the back lot of the NOAA/NMFS Office of Enforcement, as in previous years. It is at this location that sorting, sampling, and containerizing occurs.

Our method of seeing the debris from staging area to container in the off-season was to hire wage laborers by advertising at the Alaska Job Center. November and December see high unemployment rates in Kodiak and these jobs filled quickly. We hired 3 wage laborers for approximately 1 week to assist with sorting and loading marine debris. After discussing with Skagit River Steel & Recycling to find out what their requirements were, we agreed to repackage the entire twelve-ton load into super sacks of like materials. During this process we also weighed and sampled according to MCAF guidelines. We used an extend-a-boom forklift to lift the super sacks into the container, and extended the boom to push and compact the bags toward the front of the container to maximize efficiency. This entire process took our crew about one week.

Dump truck delivers marine debris from pier to staging yard in Kodiak.

We were once again able to secure reduced shipping rates through a partnership with Threshold Recycling of Kodiak, who has an agreement with Horizon Lines. We paid $1300 per container to Seattle, which is a significantly reduced rate. In exchange, we allowed Threshold to take their pick of reusable and saleable items for local recycling.

This year's container shipment weighed 23,746 lbs and completely filled two 40' containers. It included marine debris from Sitkinak (2008), Tugidak (2009 and 2010), Long Island (2010), and Shuyak (2010), as well as a few sample bags from 2009 that technically could have shipped in September 2009 but were set aside sampling and reporting later that fall (Kukak, Setnet Pilot Project).

Acknowledgements

Island Trails Network would like to thank the MCA Foundation, Boy Scout Troop 626, Alaska State Parks, Ouzinkie Native Corporation, MV Island C, Kodiak Baptist Mission, Alaska Department of Fish & Game, Keith and Sherry Garber, Alaska Pacific Seafoods, the City of Kodiak, ALPAR, and NOAA Fisheries Enforcement office in Kodiak.

Enclosures

Form 2s
Form 3s
Form 4
Invoices