Final Report on Removing MD from Prince William Sound and Kenai Peninsula Beaches in 2011

By

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Volunteers removing a net from a Knight Island beach

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Introduction

In 2011, Gulf of Alaska Keeper (GoAK) prepared interrelated proposals for cleaning beaches in Prince William Sound (PWS) and in the Gore Point region of the Kenai Peninsula. In spring of 2011, the Marine Conservation Alliance Foundation (MCAF) solicited proposals for removing marine debris (MD) from Alaskan ocean beaches. Gulf of Alaska Keeper (GoAK) prepared a proposal for cleaning specific beaches in PWS. With money from the National Oceanic and Atmospheric Administration's (NOAA) FY 08 Grant NA08NOS4630356, MCAF contributed funding toward an 8-day cleanup on the northern end of Latouche Island in PWS. The Chugach National Forest Resource Advisory Committee (RAC) funded a 12-day re-clean of pocket

collector beaches on the Naked Island group and nearby islands. In addition, the RAC also provided funding for MD disposal costs and for cleanup project fuel. In a related but separate project, NOAA, through grant NA11NMF4630054, funded a 35-day cleanup project on the Gulf of Alaska Kenai Peninsula coast. GoAK's professional cleanup efforts combined with thousands of hours of volunteer labor contributed to a very productive cleanup season. This report describes the work and results of the 2011 cleanup project.

Cleanup Methods

PWS is located in the most northerly portion of the Gulf of Alaska. The composition of the beaches is similar to that of Outer Southeast Alaska with many uneven bays and islands. The shore is rocky with sand/pebble interspersed. Some beaches within PWS are relatively protected while the beaches on the outside are subjected to high winds and cleanups may only take place during periods of calm weather. Many of the exposed outer beaches are heavily armored with dense piles of drift logs which capture a large amount of MD.

GoAK uses a combination of volunteer and professional crews to clean beaches in PWS. Most of the work on the outer, remote and exposed Kenai Peninsula beaches is done by GoAK's crew, but an occasional highly qualified volunteer sometimes accompanies the crew. All the work is done essentially by hand, with minimal tools such as serrated knives and levers for extracting nets and ropes. Chainsaws are also occasionally used to cut drift logs for net and line removal. Nearly all other cleanup is done simply by picking up debris by hand. Debris is bagged if small enough and the bags and larger debris are carried to a landing craft. The debris is then transported to a port town for eventual shipment to a landfill.

Volunteer Cleanups

Early each spring, preferably in mid-May, GoAK organizes and conducts a volunteer vessel-based marine debris cleanup project in Prince William Sound. Since initiating the volunteer cleanups in 2002, GoAK has developed a core group of experienced beach cleanup volunteers, and a dedicated group of vessel owners that donate their time and vessel to the project each year. The volunteer cleanups are limited in size by vessel capacity and by weather. Many of the shorelines cleaned each season are up to seventy miles from port, so the cleanups by necessity are 3 to 4 days long.

GoAK Professional Cleanups

The GoAK professional cleanups are comprised of experienced laborers who have worked with MD previously. They work in the more remote and rugged portions of the PWS area and Gore Point where it is difficult to use volunteers efficiently. They also gather and haul the MD collected by the volunteers.

Cleanup Results

2011 PWS Volunteer Cleanup

GoAK's 2011, 10th annual PWS volunteer MD cleanup was held May 12th through May 15th. Most vessels and volunteers departed the morning of May 13th for the cleanup target area but two vessels departed earlier, one the morning of May 12th and one a week earlier. The earliest vessel went to the Bay of Isles several days sooner and began cleaning beaches on the south side of the Bay of Isles. 73 volunteers spent several days cleaning beaches. Nine donated vessels transported volunteers and hauled debris for the volunteer cleanup. Nine kayak volunteers cleaned the more inaccessible pocket beaches along the east side of Eleanor and Ingot Islands. Vessel-based volunteers cleaned beaches from northern Eleanor Island south approximately two miles past the entrance to the Bay of Isles. All of this cleanup area was thoroughly cleaned in 2006 during another combined volunteer/professional cleanup project. Unfortunately, a considerable amount of new MD was deposited on these shorelines in the intervening five years. However, this volunteer cleanup cleaned many times more miles of shoreline because the cleanup focused on known collector beaches in the region.

Nearly perfect weather favored the cleanup, with some wind and surf hindering work Friday afternoon on the east side of Eleanor Island. With sunny calm days the remainder of the time, a great deal of debris was removed. By late Sunday afternoon, the landing craft used for hauling debris back to Whittier was completely full, with many piles of collected debris yet to be loaded. 120 bags of debris and assorted other debris (all totaling about 1 ton) were left behind for retrieval at a later date. One 40-yard dumpster in Whittier was completely filled with 5 tons of volunteer-collected debris the first load. In addition, 2 dozen mid-water-trawl floats, a 15-gallon fuel drum, a 5-gallon fuel jug, and several long lengths of crab line, all collected during the volunteer cleanup, were given to a Perry Island oyster farmer. The volunteers cleaned pockets of debris along nearly 40 miles of shoreline and collected 6 tons of debris.

2011 PWS Volunteer MD Monitoring Cleanup

Each season GoAK re-cleans 13 beaches in PWS, collecting data on types and quantities of debris. The monitoring cleanup is done completely with volunteer labor and donated vessels. A core group of trained volunteers conducts the monitoring project each season so that data collection remains consistent year to year. GoAK has now collected 5 years of MD monitoring data in PWS. In 2011, there were two separate monitoring cleanups primarily because the May volunteer cleanup targeted an area that contained 6 MD monitoring sites. It was imperative to clean those sites before the general cleanup volunteers did, thereby ruining data collection. May 13 through 15, 6 volunteers cleaned the 6 monitoring sites on the east side of the Knight Island archipelago. From June 20 through 26, 7 volunteers again cleaned these monitoring sites along with the other 6 sites in PWS. Volunteers contributed 670 hours to the PWS MD monitoring project.

Volunteers cleaning in the Bay of Isles

Bay of Isles Volunteers

Volunteer Vessels tied up for the night in Otter Cove, Bay of Isles, Knight Island PWS


Volunteers loading landing craft

2011 PWS Professional Cleanup

On May 25th, 3 GoAK workers returned and picked up the debris stashed during the volunteer cleanup. 120 bags and other debris from the earlier cleanup were loaded onto the landing craft. The workers also cleaned 24 small to medium size (20 to 200-yards long) collector beaches that had not been cleaned on the east side of Eleanor and Ingot Islands because of adverse surf conditions during the volunteer cleanup. 43 large white garbage bags of debris were collected on these beaches. 4 large hawser bundles, many large nets, several big bundles of line, 3 large packing band bundles, 4 tires, 2 large and heavy tote lids, 12 very large pieces of Styrofoam, over 30 large mid-water trawl floats, several large sections of hatchery PVC piping, many buckets, plastic drums and numerous other large items were also removed from the 24 collector beaches. Those large MD items comprised as much total volume as that contained in the 43 large debris bags. By the conclusion of gathering the remainder of the volunteer-gathered debris and the debris from the 24 collector beaches, the landing craft was slightly over half full. The GoAK crew then continued on to Sleepy Bay where the professional cleanup had been ongoing since May 24.

Upon arriving at Sleepy Bay May 28, the landing craft was immediately filled with debris already collected by the professional crew. That load of debris was hauled to Whittier May 30. The landing craft immediately returned to Sleepy Bay May 31 where it collected the rest of the debris from that area. That load of debris was hauled to Whittier June 2 along with debris removed from Point Helen. Approximately 1.4 loads of debris (7 tons) were removed from 4 miles of Sleepy Bay. Another 2 tons were picked up by the GoAK crew on the east side of Eleanor and Ingot Islands, while also picking up 1 ton of debris collected and cached the previous week by the volunteers.

After finishing the Sleepy Bay area cleanup around noon on May 31, the last day of the 8-day project on what would otherwise have been a travel day back to port, the cleanup crew instead moved north approximately 8 miles to clean a heavily-fouled 1-mile section of Point Helen shoreline on the southeast tip of Knight Island. That shoreline was directly on the route to the next cleanup project on Naked Island so the crew spent most of the day May 31 cleaning there. They cleaned approximately 1 mile of shoreline on the east side of Point Helen. The debris collected at Point Helen was hauled north to Green Island by the Cape Chacon where it rendezvoused with the landing craft and transferred the Point Helen debris. Also, on the way north to Naked Island, the crew stopped and cleaned Seal Island and the southeast corner of Smith Island, two exposed areas where surf conditions had previously stymied MCAF-funded cleanup efforts. The GoAK crew then cleaned beaches in the Naked Island group under a Forest Service RAC contract that also included Seal and Smith Islands if conditions allowed. Finally, after many years of trying, those beaches are finally cleaned. After finishing cleaning accessible beaches in the Naked Island complex, the crew spent several days re-cleaning pocket beaches on Lone Island, the Dutch Group, Bald Headed Chris Island, and Axel Lind Island. The RAC cleanup of the Naked Island complex and surrounding islands yielded 7 tons of debris. The professional crew hauled in 6 tons of debris from this area in two loads, 1 large load on the landing craft and another large load on the Cape Chacon.

High surf during the professional cleanup on Naked Island prevented access to the southeast side of the island. On June 21, 8 volunteers conducting the annual MD monitoring project returned to clean this shoreline during calm weather. 53 large bags of debris and an equal amount of large debris including drums, large floats, and many large blocks of Styrofoam were removed from this exposed shoreline. Over 1 ton of debris was removed from the pocket beaches strung along 5 miles of this shoreline.

GoAK crew removing weathered hawser from Ingot Island


Eleanor Island packing band bundle


Cleaning Eleanor Island pocket beaches

Knight Island debris pile


Lone Island 3-Wheeler

The debris collected during from the Sleepy Bay cleanup was by weight primarily nets, lines and floats. That is not surprising given that it was an area never before cleaned. However, while the marine debris in the area cleaned by the volunteers also had a sizeable component of derelict fishing gear, there was clearly a preponderance of bottles and other non-fishing related plastic trash. The volunteer cleanup area was previously cleaned in 2006 so it is reasonable that there would be less derelict fishing gear there than from an area being cleaned for the first time.

Cleaning a bear-strewn Styrofoam mess in Sleepy Bay

Cleaning Sleepy Bay forest floor

A considerable amount of the debris found on the forest floor at Sleepy Bay was trash left from the 1989-1991 Exxon Valdez oil spill cleanup effort. Sleepy Bay was heavily fouled by the oil spill and has been the site of ongoing oil remediation efforts. GoAK removed numerous embedded nets, lines and oil cleanup material such as pompoms from the forest floor and along the beach. Much of the EVOS debris removed from the forest were deteriorated bags of garbage containing lunch trash and oil-soiled Tyvek cleanup suits. Such debris is commonly referred to as Spill Swill.

Pile of the Exxon Oil Spill cleanup trash left on Latouche Island

Oiled net, Sleepy Bay

One of many nets removed from Sleepy Bay


Oiled pompom, Sleepy Bay

Load of line and other debris

Looks like turf, but it is an oil-spill pompom from Sleepy Bay

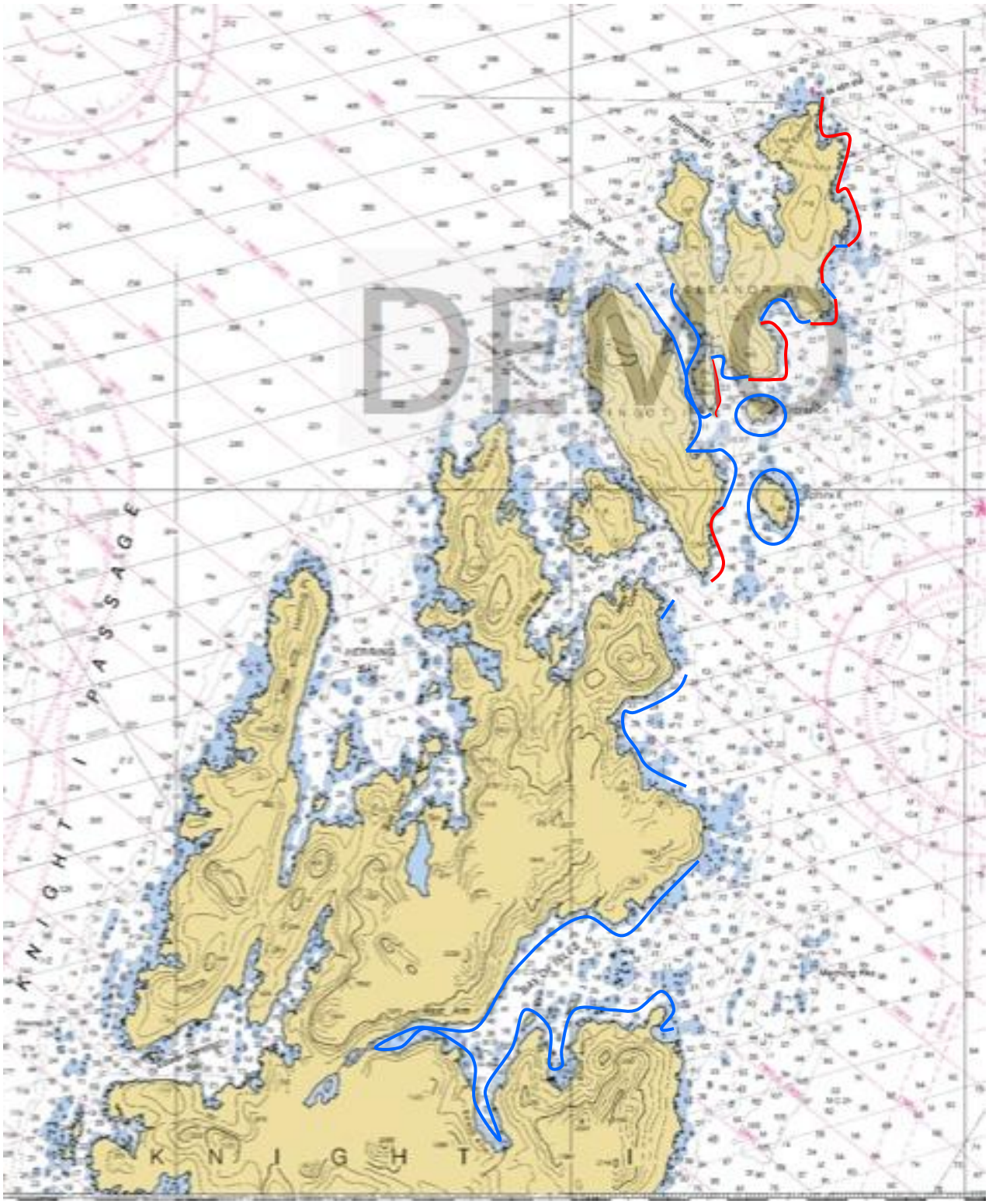


Figure 1. Professional and Volunteer 2011 MD Cleanups, Northern Knight Island Complex

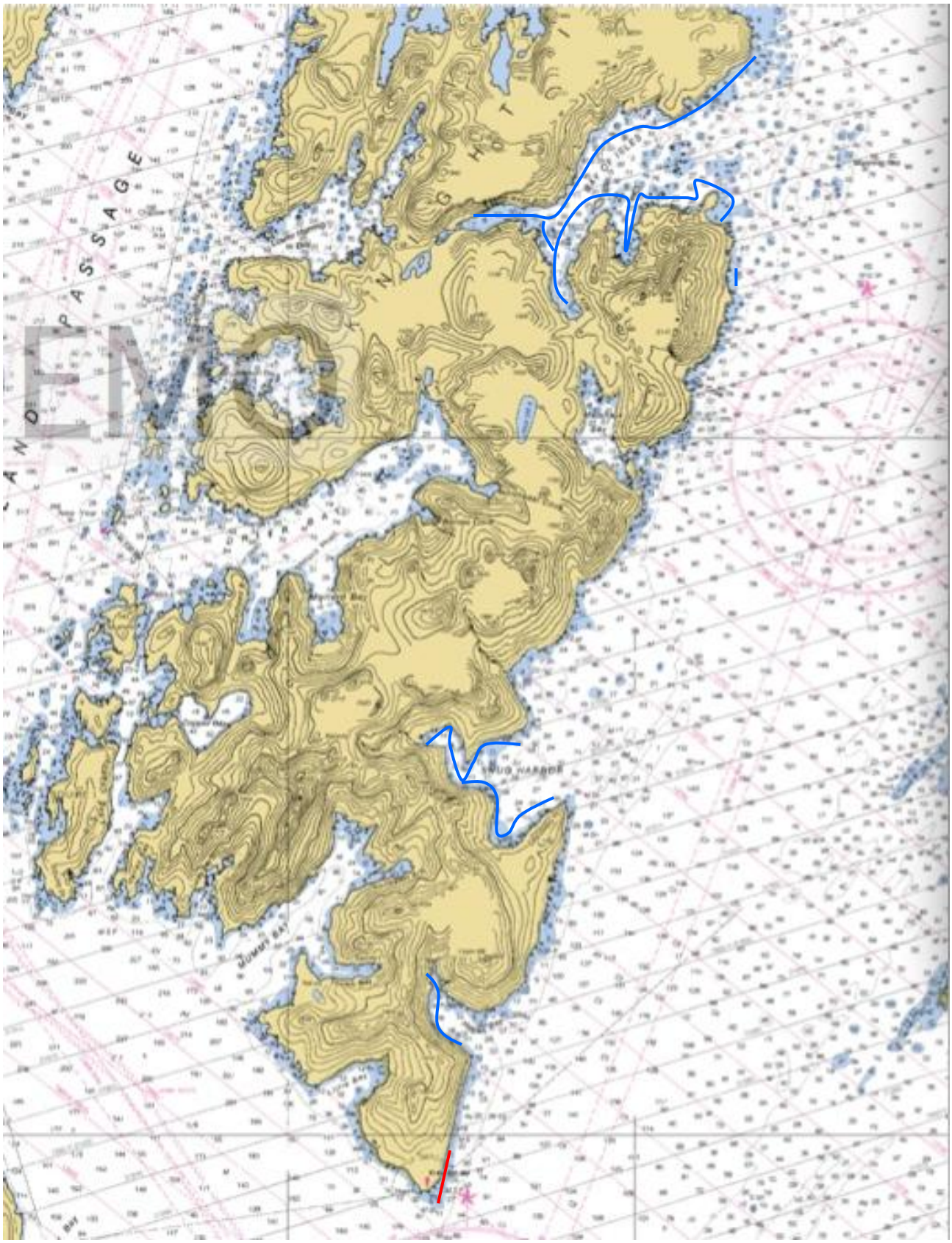


Figure 2. Professional and Volunteer Southern Knight Island 2011 MD Cleanups

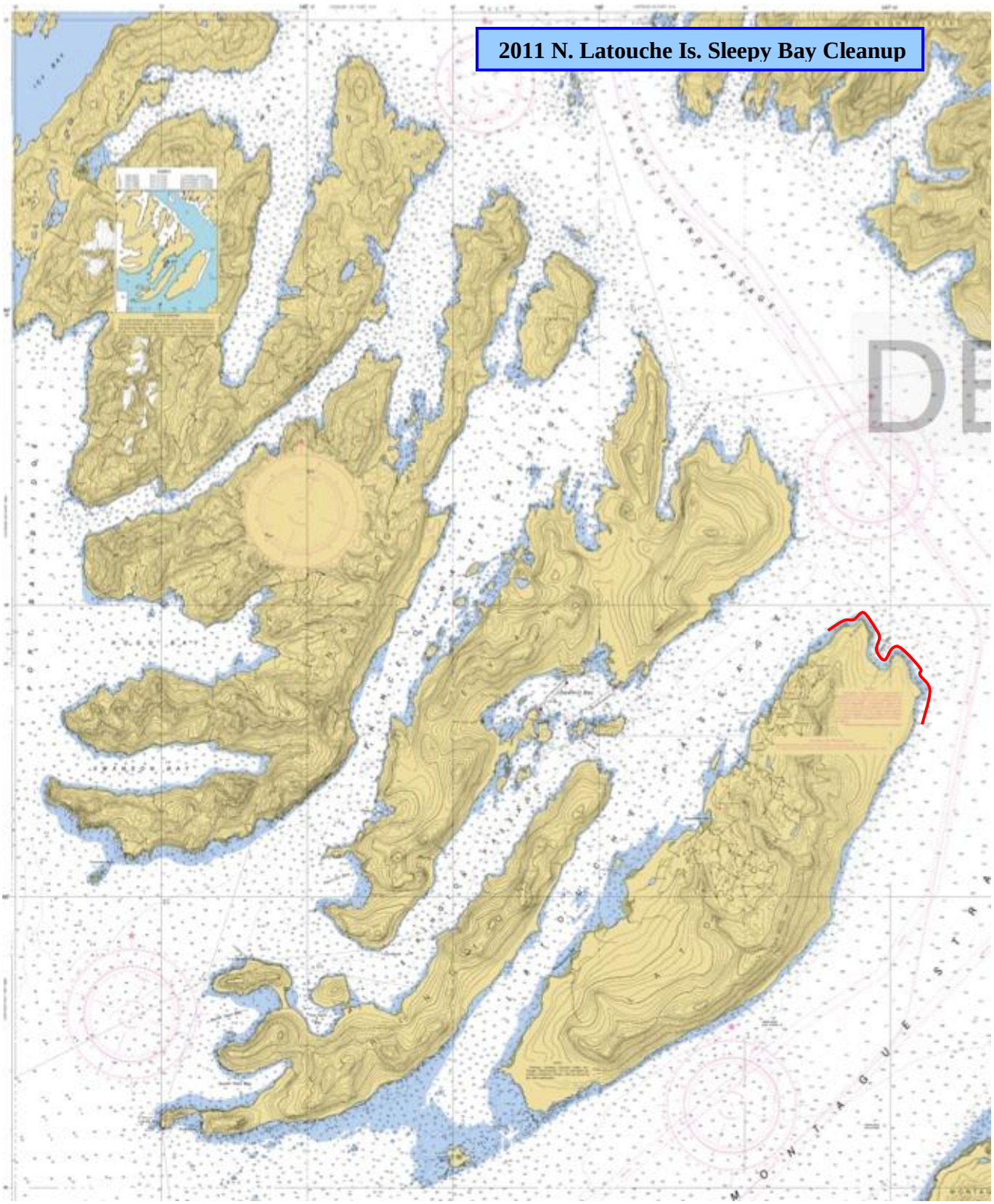


Figure 3. Beaches cleaned during 2011 Professional Sleepy Bay cleanup

Transferring PWS MD to landing craft

Landing craft piled with final load of Sleepy Bay debris


Debris removed from 1 mile of Point Helen beach staged for pickup

PWS Cleanup Conclusion

GoAK's board members and volunteers donated 3560 hours to the PWS MD projects. Another volunteer donated 210 hours to the Gore Point cleanup. Volunteers removed 6 tons of debris from primarily pocket beaches along about 40 miles of the northeast shore of the Knight Island archipelago. GoAK's crew removed 2 tons of debris from 24 pocket beaches on the east side of Eleanor and Ingot Islands, 7 tons of debris from 4 miles of Sleepy Bay beaches on northern Latouche Island, 1 ton from a mile of Pt. Helen, Knight Island beaches, and 7 tons from the beaches of the Naked Island complex and surrounding islands. Altogether, GoAK removed 23 tons of debris from approximately 150 miles of coastline. However, the mileage cleaned is deceptive because along much of that coast, only MD collector beaches were cleaned. As expected, Sleepy Bay was very dirty because it had never been cleaned before.

Table 1-3 contain data related to the professional Sleepy Bay and Pt. Helen cleanup. No data from the volunteer cleanup is included in Table 1-3 because the volunteer cleanup was conducted over 4 days and scattered along over 40 miles of coastline with different groups of volunteers working on different beaches. There simply was no way to collect data other than to track gross weight of debris hauled back for disposal. However, from sampling volunteer-collected debris at the dumpsters in Whittier it is clear that commercial fishing debris comprises a significantly smaller portion of the debris collected in PWS than that found on beaches during their initial cleaning. While commercial debris such as nets, lines and floats still make up good portion of the debris collected on re-cleaned beaches, it has fallen to around 50% of the total by weight. As a comparison, the debris removed from Sleepy Bay was around 70% commercial fishing related debris. Pt. Helen, which had previously been cleaned in 2006, had only 54% derelict commercial fishing gear, similar to other re-cleaned beaches in PWS.

Table 1. Date, location, latitude, longitude, beach length and width, natural accumulation area, trawl net samples & number of HSDN samples.

Date 2011	**Location**	**Beach**	**Lat.**	**Long.**	**Beach Length**	**Beach Width**	**Accumulation Area**	**Net Samples**	**HSDN Sample**
Professional May 24-27	Sleepy Bay Latouche Is	Center	60.03.89	147.50.39	3520	35	yes	yes	no
Professional May 27-29	Sleepy Bay Latouche Is	NE	60.03.44	147.49.17	2640	30	yes	yes	no
Professional May 29-30	Sleepy Bay Latouche Is	NW	60.04.39	147.51.23	880	30	yes	yes	no
Professional May 31	Point Helen Knight Is	Pt. Helen	60.09.30	147.54.35	1760	40	yes	yes	no
TOTAL					8800			55	

Table 2. Type and weight by location and pounds per 100yds

Location	Beach	Trawl Net	Crab Line	Domestic Gill Net	HSDN	Floats	Misc. Lines	Other Fishing Related	Banding	Plastic Bev Bottle	Plastic Non-Bev Containers	Cans	Foam	Non Vessel Related	Total Weight	Lbs Per 100 yds
Sleepy Bay	NE	1400	280	0	40	400	400	200	40	80	240	40	400	480	4000	151
Sleepy Bay	Center	3360	400	0	80	800	800	400	80	80	160	80	640	1120	8000	227
Sleepy Bay	NW	800	300	0	20	160	100	100	20	20	100	20	120	240	2000	227
Pt. Helen	Pt. Helen	400	200	20	20	200	140	100	20	160	300	40	100	300	2000	114
	Total	5960	1180	20	160	1560	1440	900	160	340	800	180	1260	2140	16000	180

Table 3. Percentage of debris by location and overall volume

Location	**Beach**	**Trawl Net**	**Crab Line**	**Domestic Gill Net**	**HSDN**	**Floats**	**Misc. Lines**	**Other Fishing Related**	**Banding**	**Plastic Bev Bottle**	**Plastic Non-Bev Containers**	**Cans**	**Foam**	**Non Vessel Related**
Sleepy Bay	NE	35	7	0	1	10	10	5	1	2	6	1	10	12
Sleepy Bay	Center	42	5	0	1	10	10	5	1	1	2	1	8	14
Sleepy Bay	NW	40	15	0	1	8	5	5	1	1	5	1	6	12
Pt. Helen	Pt. Helen	20	10	1	1	10	7	5	1	8	15	2	5	15
	Overall	34.25	9.25	.25	1	9.5	8	5	1	3	7	1.25	7.25	13.25

Packing band bundle from Block Island PWS volunteer cleanup

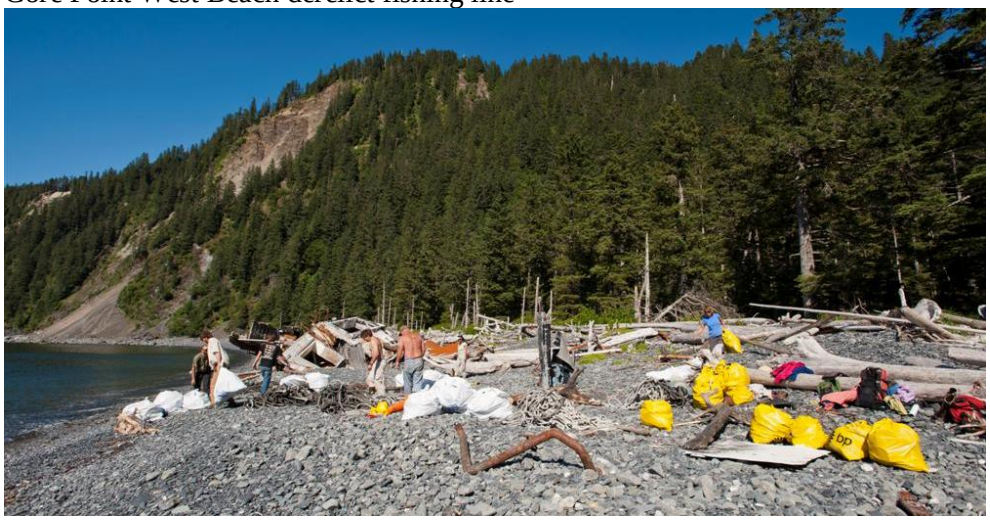
2011 Kenai Peninsula Professional Cleanup

On June 23, GoAK's Field Manager Ted Raynor on the *Cape Chacon* departed Seward Alaska for Gore Point. While waiting for the GoAK crew to arrive at Gore Point, and working as a volunteer, Ted began cleaning pocket beaches on the west side of the entrance to Port Dick, just a few miles due west of Gore Point. Over the next 21 days, he collected over a ton of debris from pocket beaches along about 6 miles of coast. The debris was staged on a protected beach inside the entrance to Port Dick where GoAK's crew later loaded it on the landing craft.

Port Dick MD

GoAK's crew departed for Gore Point June 14 in the crew vessel C~KEPR and the landing craft CKER. Upon reaching Gore Point, the crew immediately began cleaning the Gore Point monitoring sites on East and North Beach. 4 days were spent at Gore Point cleaning the East, North and West Beaches. The West Beach had a partially buried immense bundle of crab line imbedded in the beach. The crew spent nearly an entire day removing this tangled mess of approximately 1 ton. 30 bags and 4 large bundles of line were extracted.

Gore Point West Beach derelict fishing line



Bundles and bags of line from Gore Point West Beach

The east side of Gore Point seldom has surf calm enough to allow access to two pocket beaches near the tip of the point. GoAK has never been able to land on those beaches until this cleanup project when we had a few days of exceedingly calm weather. We used this opportunity to clean numerous heavily fouled small pocket beaches in the area we had never before been able to access. On the east side of Gore Point, two caverns crammed full of buoys and floats were found and cleaned as best conditions would safely allow. The buoys and floats were driven by surf

under incredible force into crevices and cracks within the caves. Deflating the buoys to remove them often caused dangerous rock falls. Consequently, many floats and buoys were left in place. A large, 600-pound Yokahama ship fender was cut up and removed from one of these beaches. Dozens of large commercial floats and Styrofoam blocks were also removed. 3.5 tons of MD were taken from the immediate Gore Point area.

MD under incredible pressure crammed into caves on the east side of Gore Point

Dissecting and removing a Yokohama ship fender from the east side of Gore Point

After finishing the Gore Point work, the crew then moved to Port Dick to collect the MD staged there earlier and to finish cleaning several pocket beaches in that area. 1.5 tons of debris were collected in Port Dick. At this point CKER was fully loaded and headed to Homer to transport the debris to the landfill. The cleanup crew then moved to Elizabeth Island to take advantage of the calm weather to finish the Elizabeth Island Lake cleanup. GoAK had cleaned this lake in 2011, removing 11 tons of MD. However, there was still a considerable amount of debris trapped under the large log jam in the lake. Many fishing nets were woven through the logs blocking access to miles of salmon spawning streams. Winter storms turned the logs and exposed most of the remaining debris making it possible to remove. The crew spent 3 days cleaning Elizabeth Lake and a couple of pocket beaches to the north which GoAK had been unable to access in the past. Debris was hauled from the lake to the beach front. When the CKER returned from Homer there was a full 5-ton load of heavy debris from Elizabeth Lake ready for transport. Most of the weight of this load was comprised of nets snagged from the bottom of the lake and log jam. CKER immediately returned to Homer with the second load from the Gore Point region.

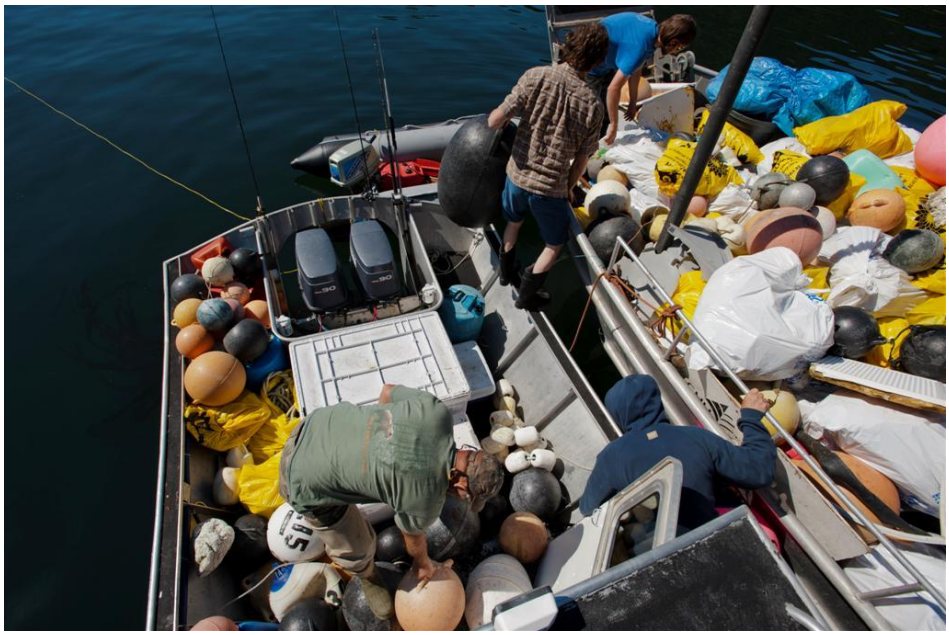
One of many nets hauled from the bottom of Elizabeth Lake

After finishing Elizabeth Lake, the crew, again taking advantage of exceedingly calm seas, targeted 2 pocket beaches on Perl Island and 1 on Chugach Island. These were beaches that GoAK had not been able to clean before. They also cleaned exposed beaches on the north side of Chugach Passage. Another 600-pound Yokahama fender was cut up and removed from Perl Island. Many nets and hundreds of heavy mid-water trawl floats were removed from these rugged beaches. A tidal slough and stream on Perl Island in which coho salmon spawn and rear was also cleaned. Submerged nets containing the remains of drowned diving birds were pulled from this estuary.


Remains of drowned sea bird in derelict net from Perl Island


Yokohama ship fender and other MD from Perl Island

After finishing Perl Island, the crew took advantage of the conditions to clean a very exposed beach on the east side of Chugach Island that was inundated with nets, lines and floats. They then switched to the exposed shore of Chugach Passage just west of Chugach Bay. Hundreds of floats, dozens of nets, bundles of line and large chunks of Styrofoam were taken from this previously un-cleaned beach. These relatively small but dirty areas produced another 5 tons of debris which was loaded on CKER for the third trip to the Homer landfill.



Loads of derelict fishing gear from Perl Island and Chugach Passage

Before completing the north shore of Chugach Passage, the weather changed pinning the crew in Chugach Bay for a couple of days. The crew took this opportunity to remove nets and other debris from the mouths of several salmon streams.

High seas drift net in salmon stream

Derelict net strong across tidal salmon stream

When the weather abated, the crew quickly moved east around Gore Point and headed north to the area around Tonsina Bay. A couple of small beaches which GoAK had never before been able to clean yielded a large amount of MD.

Typical northern Gulf of Alaska collector beach

Removing derelict net from drift logs

After cleaning the Tonsina area collector beaches, the crew moved to the east side of Nuka Island and attempted to clean some nearly inaccessible collector beaches. Several beaches on the east side of Nuka Island have long sloping sandy approaches. Because of the ever present and prevailing surf conditions it is exceedingly difficult to get on these beaches without a helicopter. While GoAK had cleaned most of Nuka Island in previous years, several collector beaches on the east side and a small bay on the northeast corner had never been cleaned. The crew successfully finished cleaning the northeast Nuka Island bay and most of the collector beaches. However, dangerous surf prevented the cleanup of one large collector beach on the southeast end of Nuka Island.

Removing Nuka Island hawser and nets

After finishing Nuka Island the crew moved into the mainland southwest portion of Kenai Fjords National Park, cleaning beaches in Yalick Bay, Nuka Passage and McArthur Passage. The debris from this area completely filled the CKER again. That 5-ton load was hauled to Seward for subsequent truck transport to the Homer landfill.

Debris from the Tonsina region

The crew continued to gather MD until the CKER returned. The collected debris was loaded onto CKER and the crew departed for Whittier where the fifth load of MD from the Gore Point region 2011 cleanup was off loaded August 17. On their way back to Whittier, the crew stopped and conducted a quick MD survey of the Pye Islands. The Pye Islands comprise a few of the islands in the Alaska Maritime National Wildlife Refuge and are situated just south of the Kenai Fjords National Park. Unfortunately, it quickly became apparent that the collector beaches on the east side of the Pye Islands are covered with MD. While these beaches were included in the 2011 original cleanup plan, there wasn't enough time available in the 35-day project to begin cleaning them.

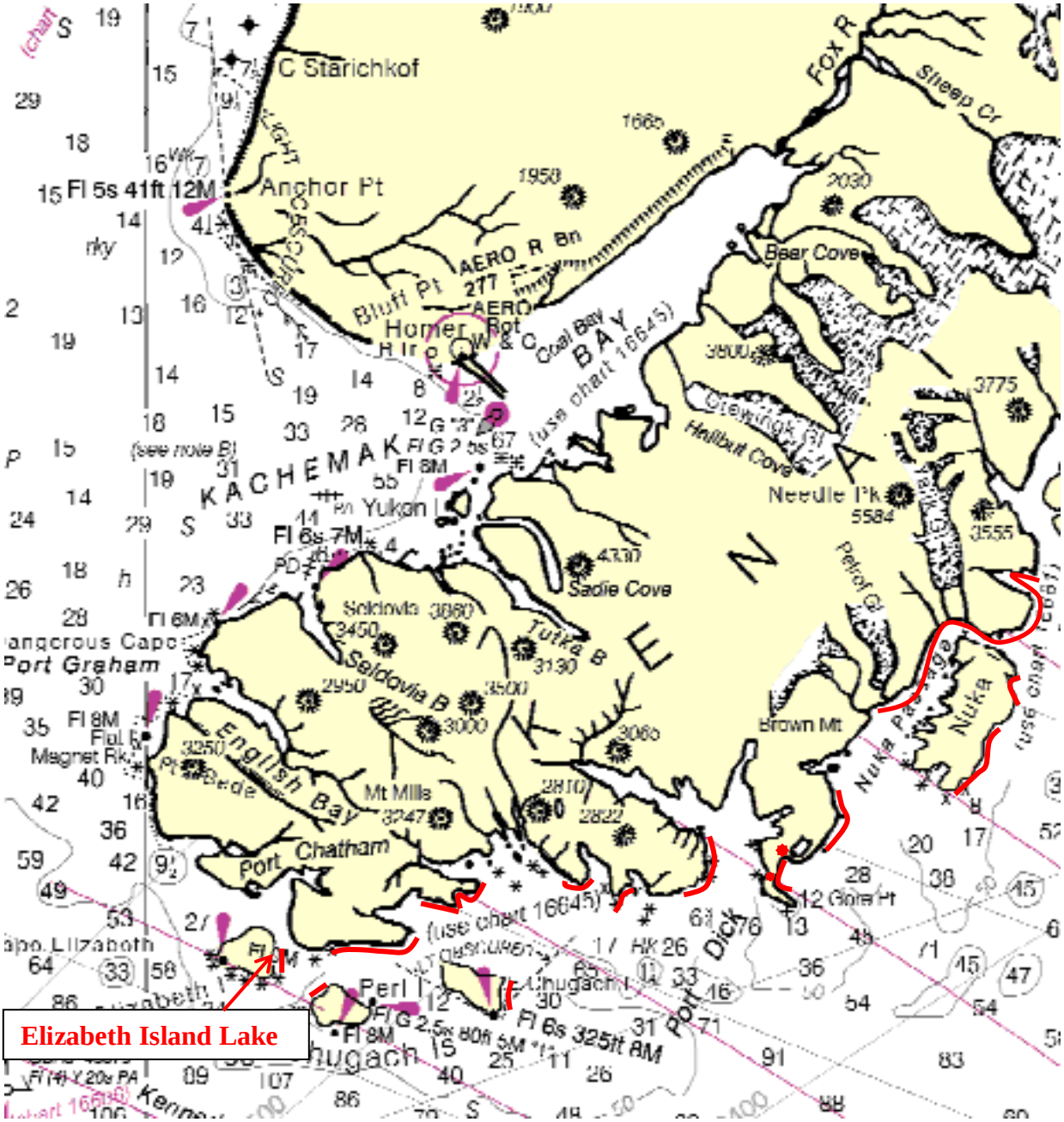
Pye Island collector beach covered with nets and line

Gore Point Region Cleanup Conclusion

Over 35 days, GoAK's 8 to 10-person crew cleaned heavily fouled pocket beaches nearly 200 miles of the rugged southwestern Kenai Peninsula coast. One volunteer spent 21 days cleaning 6 miles of beaches on the west entrance shoreline of Port Dick. 25 tons of MD were hauled from the area for landfill disposal despite two stretches of bad weather. Nets were hauled up from the bottom of Elizabeth Lake and from a tidal slough on Perl Island. Drowned diving birds were snared in the nets from Perl Island. Numerous nets were removed from the mouths of salmon streams throughout the area. 176 net samples were collected and sent to MCAF for analysis. For five consecutive seasons, 2007 through 2011, GoAK conducted lengthy cleanups in the Gore Point region. During that time, nearly 200 tons of MD has been removed from this area. All but one major collector beach from Nuka Island west have now been cleaned at least once. The focus of future Kenai Peninsula cleanups can now shift east to the Kenai Fjords National Park and the Alaska Maritime National Wildlife Refuge shorelines, and to the 40-mile stretch of exposed coast between Resurrection Bay and PWS.

Gore Point 2011 MD Cleanup

Pocket Beaches Cleaned Shoreward of ——
Gore Point MD monitoring sites •



Kenai Fjords National Park Coastline, Nuka Bay to Seward
Beaches cleaned in 2011

Shorelines north of the red line cleaned in 2011.